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TEXTILE
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AMERICAN

DYESTUFF REPORTER

JANUARY 27, 1947
VOLUME 36, No. 2

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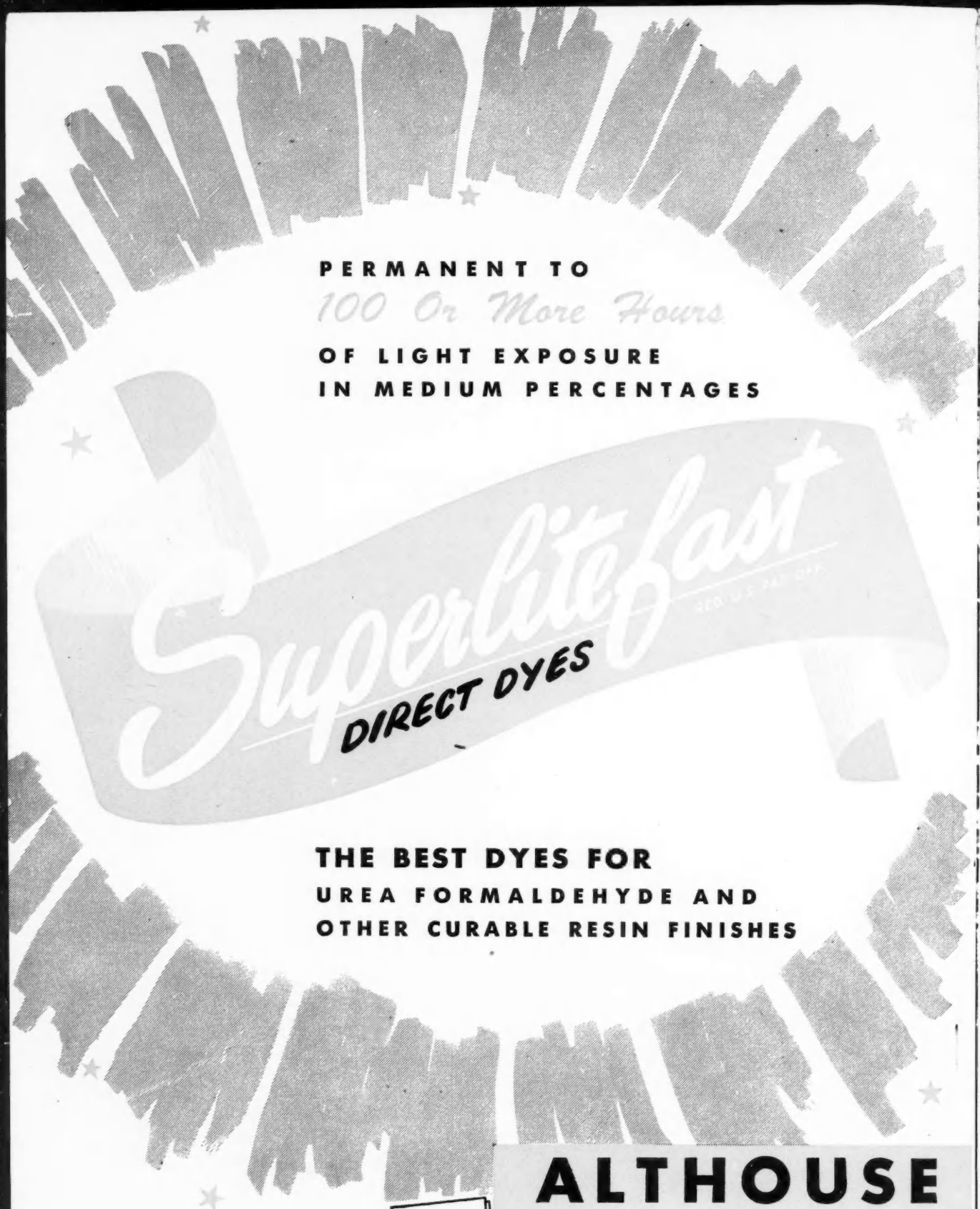

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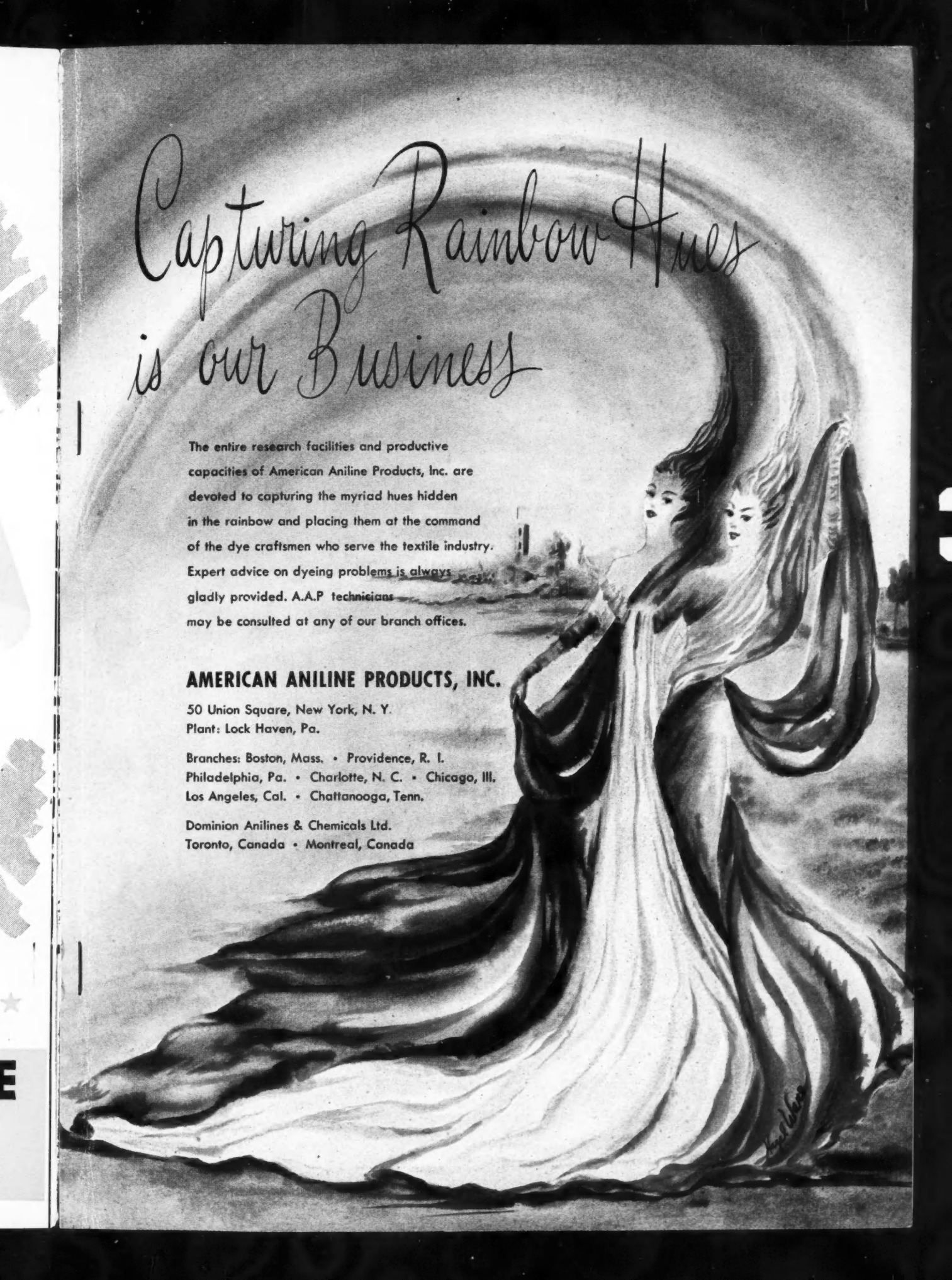
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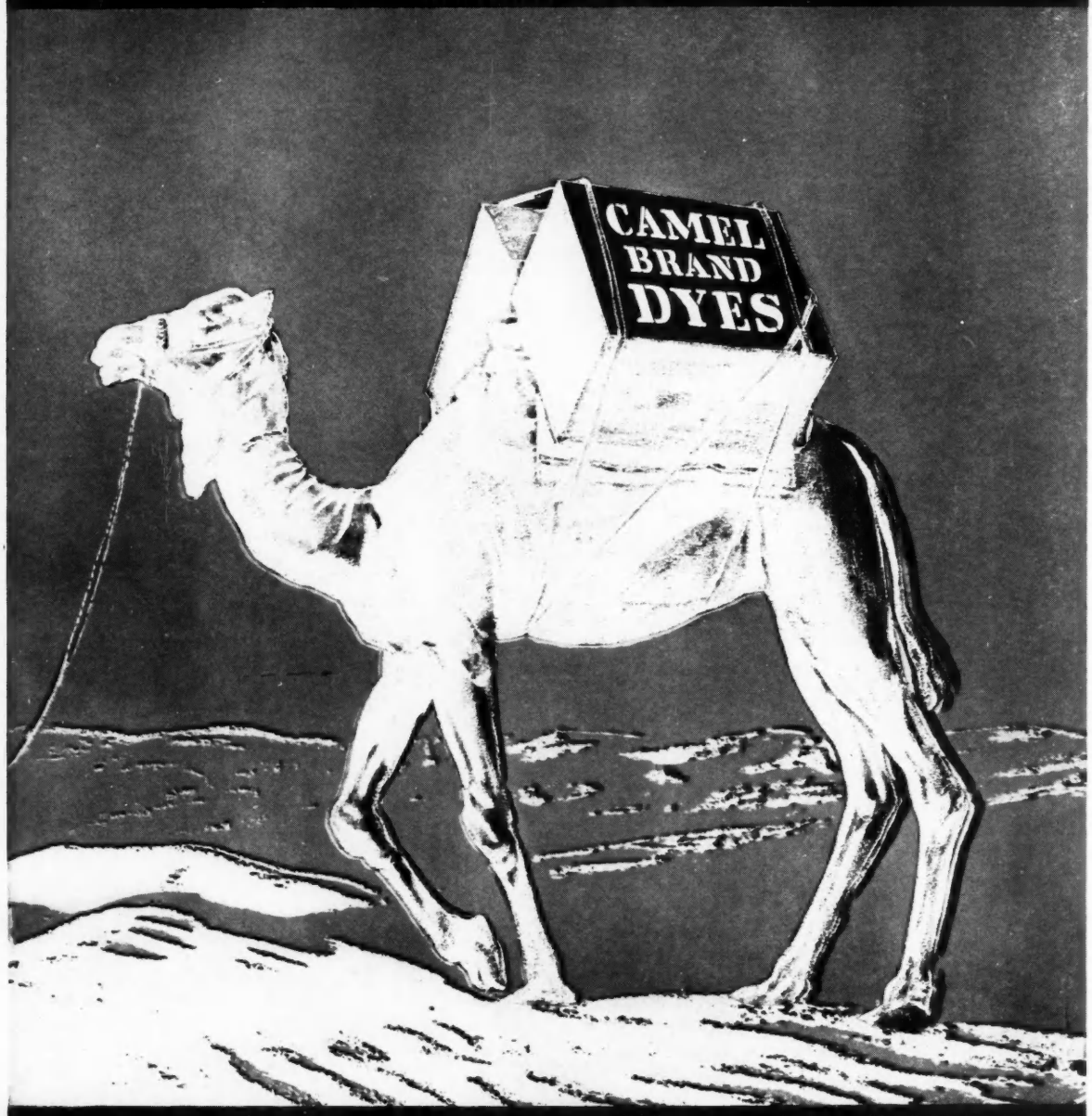

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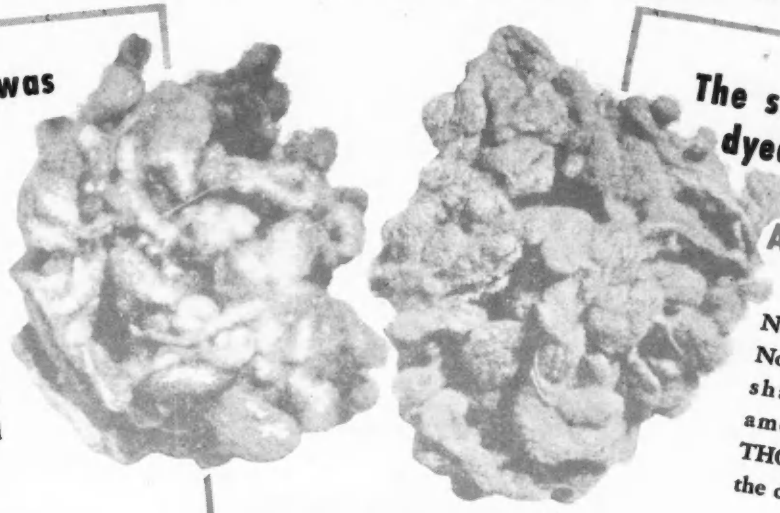
TIPPY WOOL ?

This wool was dyed in the ordinary way

It is still tippy —damaged wool prevented even dyeing.



The same wool— dyed with the aid of ANTHOMINE

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. . . SUBSTANTIAL INCREASE IN COLOR YIELD

. . . NO SACRIFICE OF BRIGHTNESS OR FASTNESS

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Write for Technical Service Bulletin No. 203.100.1

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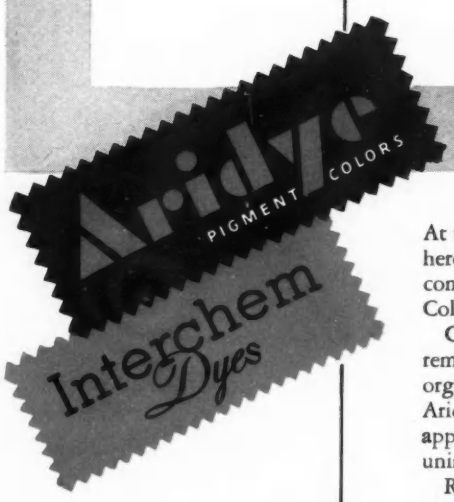

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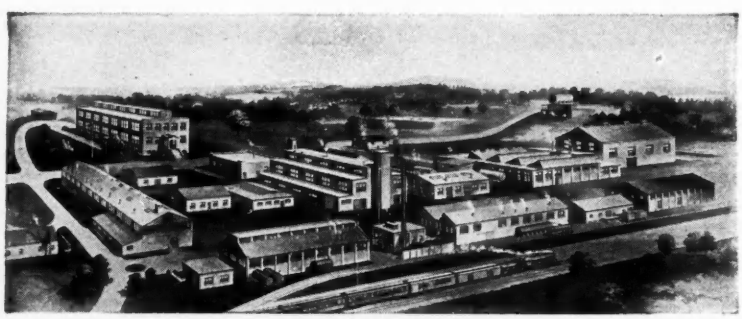

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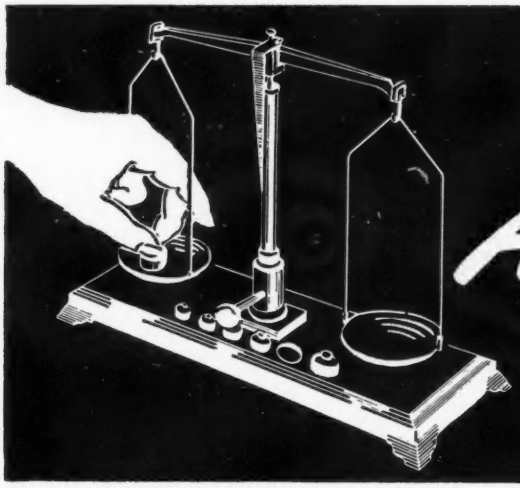

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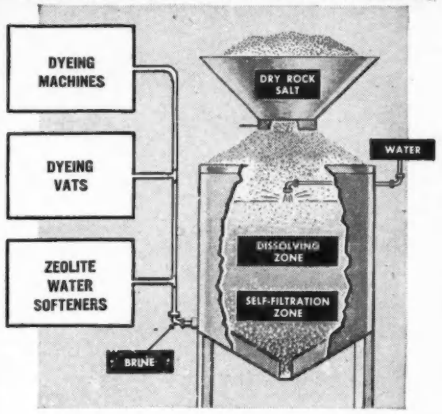

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JANUARY 27, 1947

VOLUME 36 NUMBER 2

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George B. Chabot, Jr., Calco Chemical Division, American Cyanamid Co., 146 W. Kinzie Street, Chicago, Ill.

Vice-Chairman
George E. Osha

Treasurer
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Southeastern Section

Chairman
A. Kempton Haynes, Rohm & Haas Co., Inc., 1811 Meadowdale Ave., N. E., Atlanta, Ga.

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Howard M. Waddle, West Point Mfg. Co., Shawmut, Ala.

Vice-Chairman
Matthew T. Barnhill

Treasurer
Allyn J. Morse

Student Chapters

Lowell Textile Institute
North Carolina State College
Philadelphia Textile Institute
New Bedford Textile Institute
Georgia School of Technology

Members should notify the Secretary immediately of all address changes

RESEARCH COMMITTEE EXHIBIT

Silver Jubilee Convention, Boston, Mass., December 12-24, 1946

CONSIDERABLE interest was shown in the exhibit sponsored by the Research Committee at the Silver Jubilee Convention held in Boston on December 12-14, 1946 at the Hotel Statler. Approved and tentative test methods were illustrated by displaying testing instruments, fabrics, photos, descriptive material, samples, etc. The custom of a research committee exhibit was inaugurated at the Victory Convention held in New York and the favorable comments at that time indicated that a similar exhibit at the Silver Jubilee Convention would be welcomed.

There appears on these pages a number of photos taken during the Convention. We are indebted to the Massachusetts Mohair Plush Company for the use of these photographs. The descriptive matter is necessarily sketchy and the reader is referred to the published reports of the various sub-committees in the Proceedings and the Year Book of the Association for complete information.

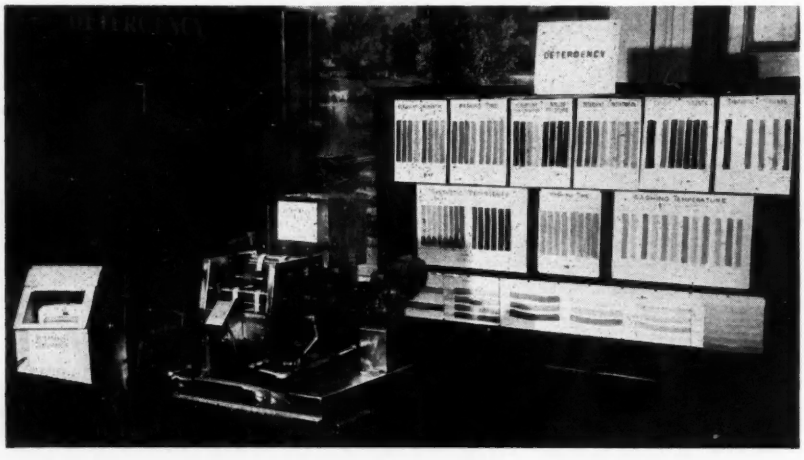


EXHIBIT OF DETERGENCY COMMITTEE

At the extreme left is the original model of the Detergency Comparator. Next to this is the more elaborate experimental model No. 2. On the wall are typical results obtained by use of the Detergency Comparator. Also shown are cards portraying some of the work done by the committee which presented the Northern New England prize contest paper entitled "A Study in Detergency."

The detergency machine was built by Riggs & Lombard of Lowell, Mass., who have contributed considerable work in the development of the machine. They have worked closely with the detergency committee.

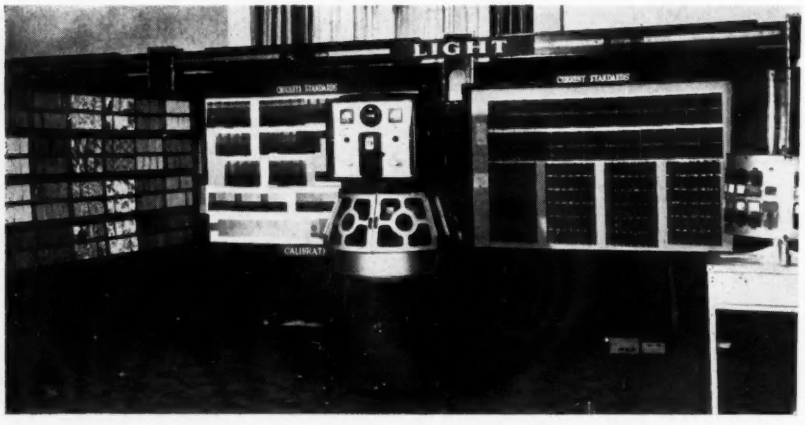
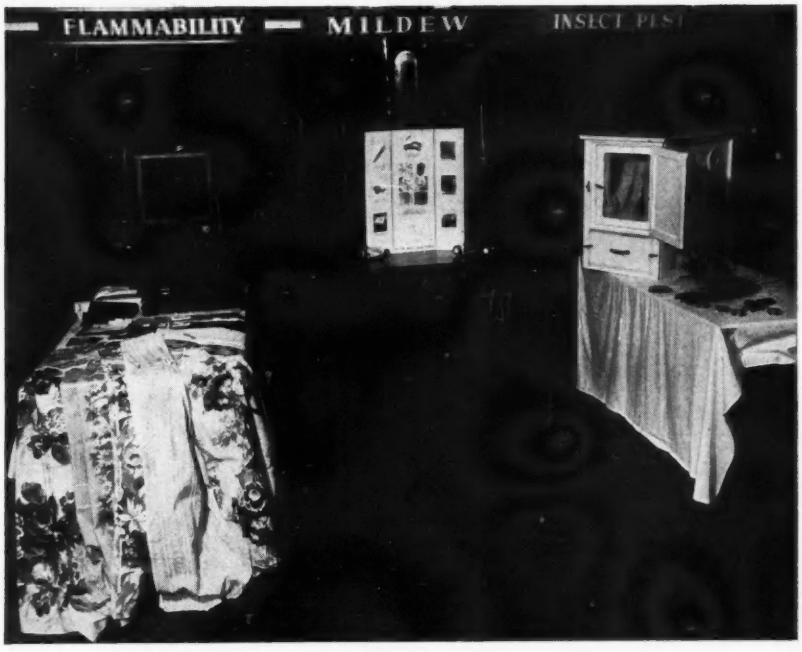


EXHIBIT OF LIGHT FASTNESS COMMITTEE

In the center is a modern Fade-Ometer. An early model of the Fade-Ometer is shown at the extreme right. In the background are shown obsolete and current light standards, portraying the development of these standards.



APPARATUS DEVELOPED BY THREE COMMITTEES

Shown at the left is the recently developed flammability tester. In the center is a display by the committee on mildewproofing. At the right is found the life cycle cabinet used in the test for the evaluation of fabric pest deterrents.

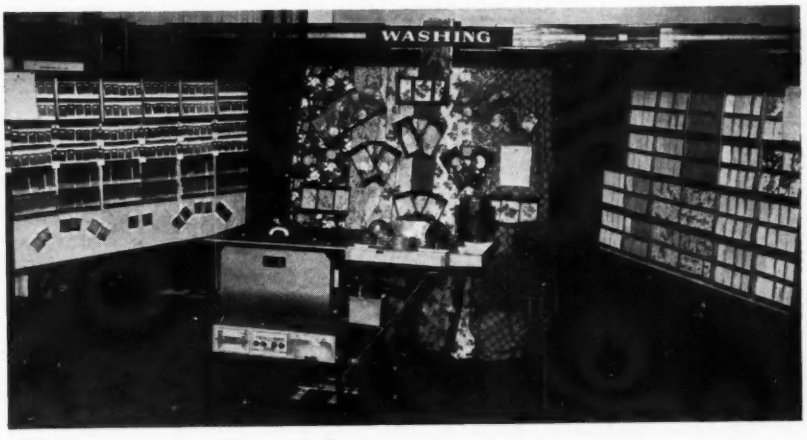


EXHIBIT OF WASH FASTNESS COMMITTEE

In the center are the Launder-Ometer and the newly developed corrugated metal containers. Mounted in the background are samples illustrating wash-fastness tests made in the comprehensive program of this committee.

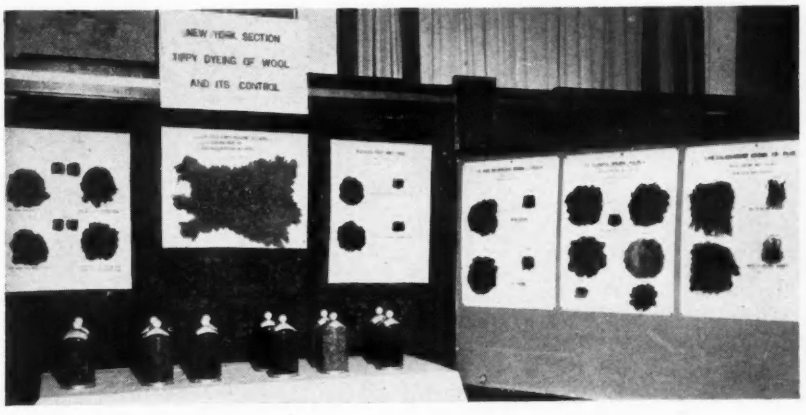


EXHIBIT OF NEW YORK SECTION

Exhibit of the New York Section prize contest paper entitled "Tippy Dyeing of Wool and its Control."

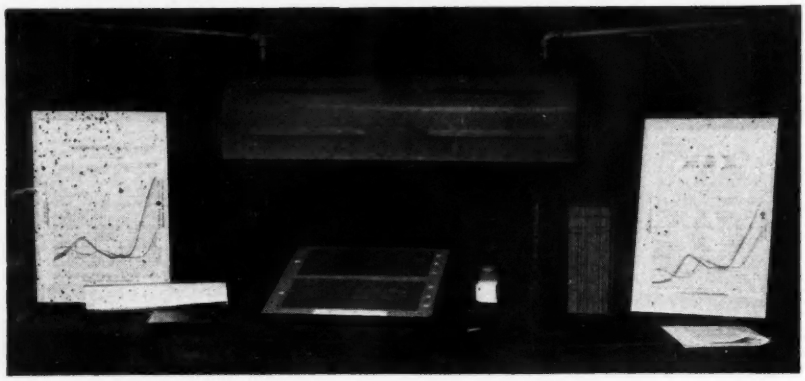
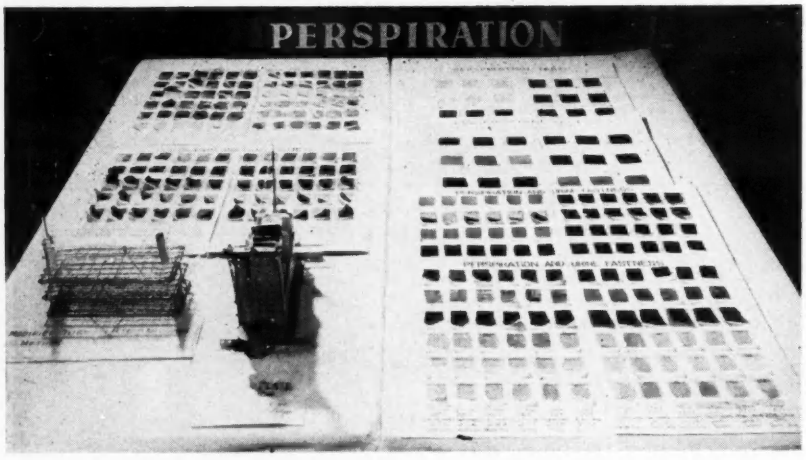


EXHIBIT OF COMMITTEE ON COLOR

The equipment shown compares appearance of dyed material under different lights.



COMPARISON OF THREE PERSPIRATION TEST METHODS

The rack at the extreme lower left illustrates the regular- and modified-tube methods. The adjoining apparatus is that used in the recently developed glass-plate method which is of particular interest in connection with pile fabrics.

EXHIBIT OF RHODE ISLAND SECTION

Exhibit of the Rhode Island Section prize contest paper entitled "The Replacement of Starch in the Treatment of Textile Fibers and Fabrics."

Modern Trends in Textile Machinery*

ERNEST CANNITY

James Hunter Machine Co.

I HAVE been asked to speak to you tonight on modern trends in textile machinery. In general, I would say that it is to enable the textile manufacturer to improve production, increase production, decrease production costs, minimize labor —both attendant and maintenance, increase automatic control and by locating machines to the best advantage, to get as near as possible to a continuous production line. My experience is mostly with wool preparation and wet finishing machines for woolen and worsted goods, so I will have to confine myself in general, to the machines used in these two branches of the art of textile manufacture.

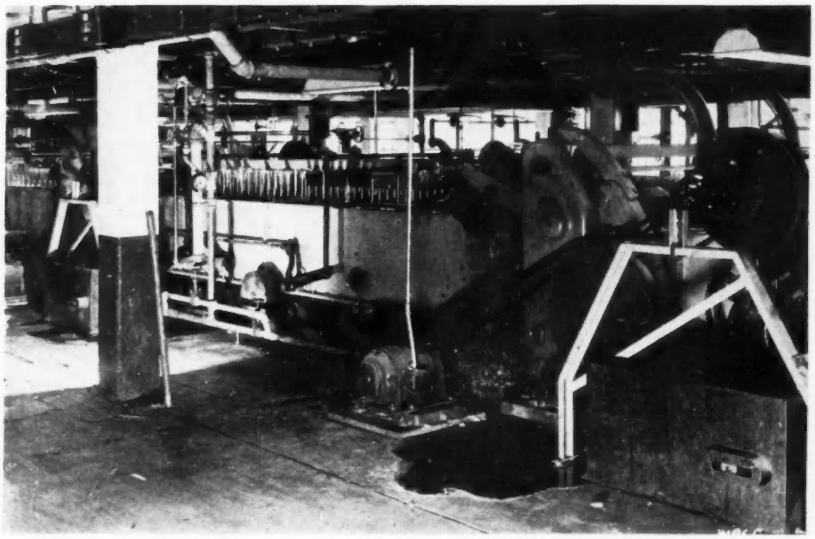
Wool Scouring

Starting with the scouring of wool, if blending previous to scouring was desired, a number of men would make up a pile of wool in layers of the different types, quarter it and toss it around until they thought it sufficiently blended, and it would then be fed into the wool opener, duster, or Washer; among modern methods, one is to line up on both sides of a long apron, a number of Automatic Feeders; in some cases, as many as 20 of them, each calibrated to feed a definite percentage of the required total. Half these feeders may contain the same type of wool and feed 50 per cent of the total, and the balance set to feed 5, 10, 20 or more percent of different types. This not only saves labor, but results in a better blend.

Before scouring, more machinery is now used to remove as much loose dirt, sand and other foreign material dry, thereby decreasing costs by saving water, steam, soap and alkali. Since this is an all-automatic and continuous production, no labor costs are added. While one disadvantage, a shortening of the fiber is theoretically possible, the fact that the wool is in the grease state and the individual fibers are naturally lubricated, they slide easily on the teeth of the cylinders, and on the opposing grids or screens against which the stock is battered to knock out the foreign matter, and not much breakage should occur. To remove still more dirt and possibly staining elements without the use of soap and alkali many trains of washers are now equipped with a steeping bowl using only cold or tepid water.

This water may be fed directly into this bowl or an excess may be used in the last rinse bowl to get a more thorough rinse, and this excess pumped back and used in the steeping bowl. In the scouring bowls proper, some operators are cutting costs and saving soap and alkali by running temperatures 15 to 20 degrees Fahrenheit higher than the old time operators and getting better results. More bowls are being used in spite of the objections of the old timers that more squeezing means more felting, since after all, it is soaking and squeezing that removes the dirt from the wool and that is the purpose of the washer. More automatic temperature controls are being used to get a more uniformly clean product since if left to the operator and the water gets too cold, the wool going through the machines at that time will not be as clean as the stock that goes through at a predetermined desirable higher temperature, and if the operator turns on the steam and forgets it, too high a temperature may result and the wool will be damaged. Automatic dumping of the bowl is more general now.

Instead of the operator dumping one to four inches of the liquor in a bowl every hour, or when he thinks of it, automatic means can now be furnished to dump a certain amount of liquor at any predetermined time. Previously, it had been the practice of the user to throw away a certain amount of liquor, say every hour, and the whole contents of the scouring bowl every day, along with its heat units, soap and alkali, not because they were too contaminated. This was bad too, from another angle. I understand a new scouring bath improves the first two or three hours, possibly due to the assimilation of certain potassium and other salts that it picks up from the wool, but since it has also picked up so much contamination, it has to be discarded. By automatically discharging a certain amount at certain periods and separating the contaminating dirt and grease, some plants can now use the same bath a whole week by automatically weighing and feeding in new soap and alkali in a required ratio to the wool, and a little make up water to replace that lost in the separation process. This make up water may have already been used in the rinse bowls and will bring back with it some soap and alkali



Hunter Wool Washers

* Presented at meeting, Northern New England Section, October 18, 1946.

that it has recovered from the wool during the rinsing operation.

Some type of separating system will eventually become a must to prevent steam pollution by the discharged liquor whether or not we re-use the liquor after separation.

The shape of the bottom of the wool washer has been drastically changed to facilitate the discharging of the mud. We understand that if the mud is allowed to settle and stand, bacterial action develops which adversely affects the scouring properties of the liquor, and is also responsible for much of the unpleasant, to one not accustomed to it, odor.

To eliminate this condition we have designed the bottom with an angle of 60 degrees and streamlined it as much as possible by minimizing all corners or projections which might harbor mud or interfere with its rapid discharge when the valves were opened.

To obtain a better and more uniform squeeze, the type of weighting on the top squeeze roll has been changed. With the old system of weights and compound levers, when a bunch of stock went through the rolls and the weights jumped up, stock going through the rolls while the weights were up was not as well squeezed as the rest. This meant that not as much dirt was squeezed out, and in the case of the last squeeze, that not as much water was removed, putting an additional load on the dryer which in turn probably delivered those portions still wet.

With the new type of weighting, either pneumatic or hydraulic, the squeeze is much more uniform and by eliminating the hammer blow on the top roll when the weights fell it increases the life of the top roll tremendously.

In conjunction with this new type of weighting, there have also been incorporated anti-friction bearings for the rolls. On the face of it this roll speed is so slow that it would appear anti-friction bearings should not be necessary. A well-lubricated bronze bearing should not have much friction. However, when left to the operator, the lubrication was often forgotten, and at other times, applied too generously with the result it overflowed and wasted oil and operators time, and sometimes the oil got onto the wool and stained it. When insufficient lubrication was applied, the friction due sometimes to as high a load as 4 or 5 tons on each bearing had to be overcome by turning the top roll by the bottom roll through a bunch of wool which applied all the turning effort on a small area of the top roll.

The top roll was very often weakened in this area, and its life thereby shortened. Gears are applied to couple the rolls, but they are so designed that they only go into action if the top roll slips and hesitates or does not turn; otherwise, the rolls would plug up. If the top roll was positively driven, unless the rolls and gears were in exact ratio, a slip would develop which would also eventually wreck the weaker roll, and if wear developed unevenly in the rolls, this would become more pronounced.

Actually, there has been no radical changes in wool scouring machinery. So-called dry cleaning has been tried, but it has not received much general approval. It may be that in this electronic age, someone, sometime might develop electronic means whereby the foreign matter may be discharged from the wool fibers electrically. With metals, one kind of metal can be electrically deposited upon another and by changing the current, the deposited metal discharged from the base and a method has also been devised, whereby metals such as stainless steel can be cleaned and polished by similar means. Dust can be removed from air, so it is not beyond the realms of possibility that the cleansing of wool might also be similarly accomplished.

Drying

For the drying of wool, a new feed has been designed which has reduced maintenance by substituting a spiked drum with heavy slats bolted to heavy cast iron spiders to replace the old style light slat apron on chains. The lighter slats were prone to breakage; the stock worked between them and was lost and too much fell to the floor, making extra housecleaning for the operators. The chain also wore out too quickly with the increased tempo of production. The elimination of the chain permits the spiked surface of the newer feed to be run much faster resulting in a picking action which opens up the stock, presenting it in a better condition to be more easily and uniformly dried.

It is also possible to set the spiked drum high enough above the floor to permit extending the dryer apron under the feed. Any stock that might fall is then caught by the dryer apron and carried into the dryer with the rest of the production. This new feeder then has reduced maintenance and attendance, improved the product and decreased cost.

The newer dryers use more air and less steam to accomplish their function, and since they dry more quickly less damage is done to the fibers. With the variable speed drive for the apron, by which the time the stock is exposed to the heat can be controlled within a range of seconds, and temperature control, by which the heat can be controlled within 2 or 3 degrees, a condition of time and temperature can be calibrated for different types of stock to give perfect results. It is not the process of drying which causes damage to stock, it is overdrying and in the older types of machines where time and temperature are not easily manipulated, an operator might get good results on a fine stock which is hard to dry and damage one that dries more easily, by running both stocks under the same conditions.

In the newer dryers, too, means are furnished to turn the stock over after it is partly dried. This results in a more uniformly dried product instead of one that is overdry on the top and wet on the bottom.

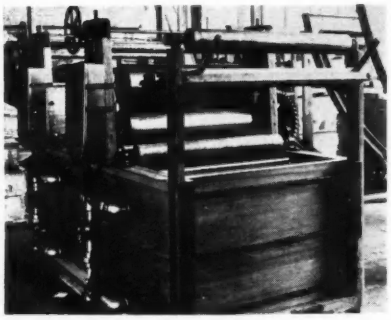
Mechanical Blending

In the picker house, the trend there is to improve production by replacing manual blending by mechanically blending which also reduces costs and to use mechanical means of conveying the blended stock. More attention is being paid even to the location of storage bins. I have seen installations of bins on the floor above the card feeders with large hopper bottoms projecting through the ceiling, directly over the card feeds. Thus the card feed was always uniformly full as long as it was on any one type of stock, resulting in a more uniform sliver. Since the stock was sucked up from the picker room and gathered over the bin by a condenser, no lint was blown around. The exhaust fan creating the suction removed any loose dust from the stock, and by means of magnets and traps in the pipe line, all metal and heavy foreign material was removed before the stock was delivered to the bin.

Applying Soap

Moving into the finishing room, we find some progress in the means of applying soap to the goods prior to fulling. Some finishers to save an operation, apply the soap to the goods in the fulling mill. This is best done by having the soap tanks connected to a loop of piping over the mills with branches to the mills. A pressure relief valve in the loop permits a constant pressure in the loop and branches. with any excess going beyond the valve and returned to the tank. A valve and meter in each branch allows the operator to feed any desirable amount of soap to each mill. There are, of course, a number of objections to this method of soaping. The goods have to run dry for awhile, and it is some time before the soap is uniformly distributed through the pieces, so there is some tendency for the fulling to start out unevenly. The soaping machine is the better means of apply-

ing the soap, and the new soapers eliminate many of the undesirable features of the old ones. In the old rope soaper, the tank was filled with soap and the goods run through. The first pieces picked up good clean soap, but as these were squeezed a lot of dirty emulsion was squeezed out and back into the tank to be picked up by the later pieces. Newer soapers were built in tandem with the first pair of rollers wider than the second pair. This allowed the soap to be worked into the goods more uniformly and thoroughly and by having just enough soap constantly fed into the tank to be picked up by the goods there is not much excess to be squeezed out to spoil the soap in the tub.



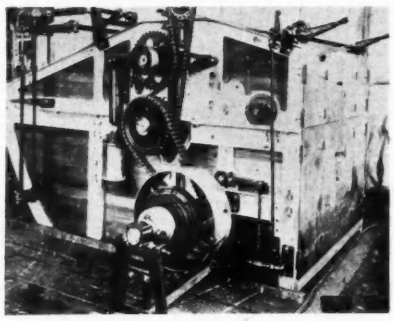
Hunter Tandem Soaper

A still better type of soaper is the tandem open width type in which the soap is padded onto one side, the goods turned over, and the soap then pad applied to the other side. The goods are then folded onto a truck. Another advantage of this method is that if it is desirable to use a paint or tar remover it can be applied with the soap, and the tar is softened up before the goods go into the mill.

Fulling Mill

The last few years have seen many improvements in the construction of the fulling mill.

Sectional rubber rolls with better pulling qualities will now outwear wood lagged rolls many times. They have no wood lags to become loose and cause damage and do not require that water be kept dripping on them to prevent them drying out when the mill is shut down. 16,000 hours equivalent to 8 years single shift operation has been reported as only showing a reduction in diameter of 3/8" and a wear in the center of 1/16". These rolls were turned up and will run many more hours. Stainless steel crimping boxes have virtually eliminated the hazards of the wooden box which warped and wore, changing its setting in relation



Hunter No. 26 Double Fulling Mill

to the rolls and causing damages to the goods. Wood screws and bolts in the wooden box, potential hazards, have also been eliminated. Many mills report that with their old mills, damages were taken as a matter of course. With the new mills, they never get a damaged piece. Antifriction bearings with attention once or twice a year have eliminated oil attention every day with overoiling causing an opportunity for oil to get on the goods.

Chain drives have replaced noisy gears and are more flexible permitting rolls to be turned down further without changing the couplers. Hydraulic or pneumatic pressure devices are a big improvement on the old spring method of weighting. Since the cylinders are connected, the pressure on both top bearings must be equal, while with the springs, it would be difficult to set them so they would be equal. By means of the cylinders, the top rolls can be readily raised to release the goods when a knot or snarl has caused the machine to knock off. Also, when looking for a seam, if the operator just misses it, he can raise the roll and pull the seam back rather than let the piece run all its length again and perhaps miss it a second time.

The pressure can also be readily varied on different goods and where many different types of goods are run, a best condition of weight on the rolls, weight on the trap, setting of the throat and soap used can be recorded, so than when similar goods are run again best conditions can be duplicated.

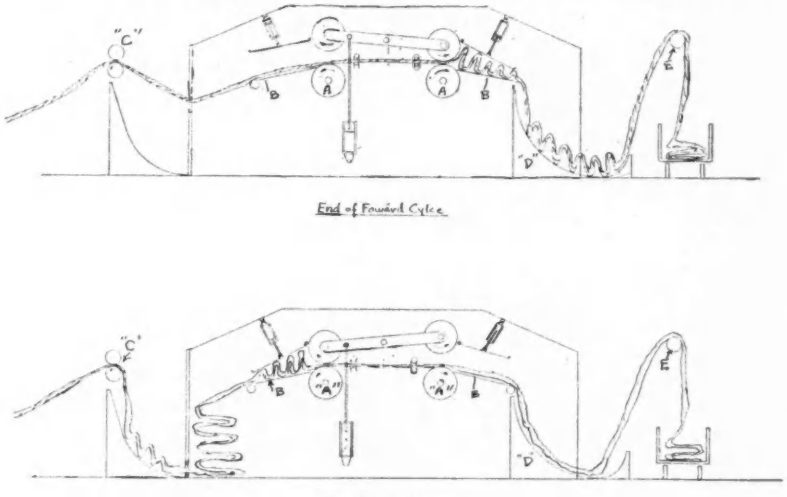
The tendency is also to use larger mills to save space. However, to get good results from a large mill, it should carry a full load. When running 2 pieces between rolls, when you should run four, by closing up the guides you can hold the goods to about half the width of the rolls and get width fulling. But when the goods enter the trap, if instead of standing cuttles or folds where pressure is applied on the ends of the folds, causing head fulling or shrinking, the folds can fall over and lie horizontal in the box you would get more width fulling instead of head fulling. With regular soap fulling the wooden tube, with a stainless steel lining for the bottom to assist the goods in sliding to the front of the mill, seems to give universally satisfactory results. With the advent of acid fulling, it is desirable to make an all stainless tub and adapt the rolls, shafts, whip roll, knock-off and all the inside of the machine to resist the action of the acid.

Continuous Fulling Mill

We have developed and have in operation a continuous fulling mill.

The present machine is a single unit fulling continuously at a speed of 3 yards per minute.

If a 30 yard per minute production was



Sketch of Hunter Continuous Fulling Mill

desired it would require 10 single or 5 double similar units in tandem.

This first machine is essentially two single mills set face to face. Referring to sketch, there are two pair of rolls "A" with their crimping boxes "E" behind them. The goods enter the machine through a pair of feed rolls "C" which run at the speed of production, that is in this case 3 yards per minute. After passing through the feed rolls the goods are sewn to a leader threaded through both traps and boxes and accumulated in a scray "D" at the further side of the machine. When ready to start the top roll and trap of the first half of the machine are dropped and the machine started.

The fulling rolls pull the goods from the scray through the opposite crimping box, whose trap is raised, and then through the rolls. The top roll of this pair is raised so that the goods may be pulled through easily. After passing through the fulling rolls and box, the goods fall to the bottom of the mill under the feed rolls. After the goods have run in this direction a predetermined length of time controlled by an electric timer, the top roll of the pair that has been pulling the goods and the lid of the box that has been trapping them are raised and the other top roll and lid of the other box are dropped.

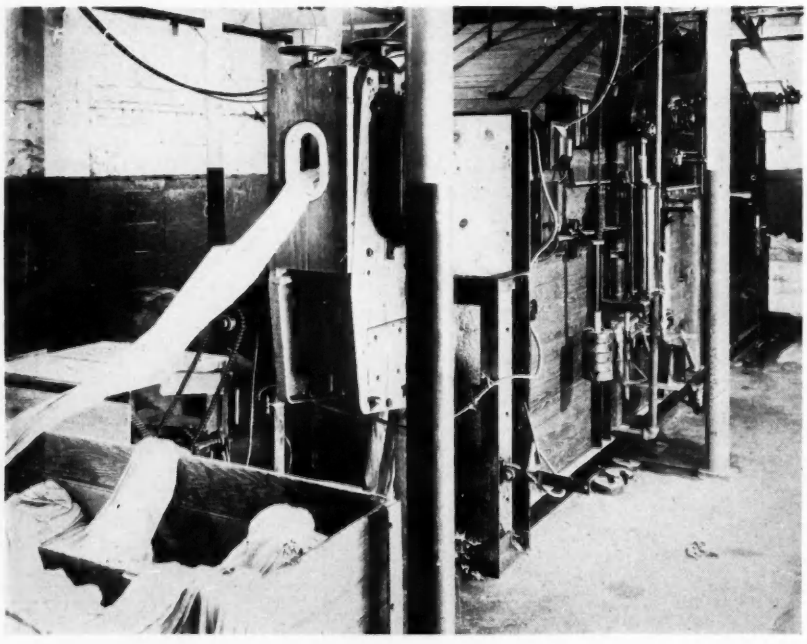
This pair of rolls then pulls the goods in the opposite direction. The leader and the head of the goods are started out of the back of the mill over a delivery roll "E" running slightly slower than the feed rolls.

As the goods are pulled from the scray under the feed rolls and the slack begins to be taken up, they automatically again drop the top roll and trap of the first half of the machine and raise the top roll and trap of the second half causing the goods to again reverse and run in the original direction. The advantage of this is the same as taking the goods out of a conventional machine and turning them end for end to get more uniform fulling action on the goods.

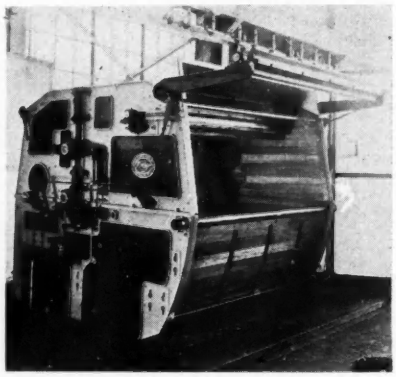
Among other advantages are labor saving and more uniform shrinkages. In a conventional mill the end result on each piece is judged by the operator and if pieces of different lengths are run together the shorter piece has gone through the rolls and box more often and comes up faster but the operator may decide to take out all pieces at once, and if on an incentive system or it is getting near quitting time he may take goods out that should have a little longer fulling. In the continuous mill each yard gets the same action.

Another advantage is elimination of lost time, especially on goods needing only a short fulling time. In some cases, the mills are idle half the time while being loaded and unloaded.

The continuous mill, of course, eliminates all this loss time and if run synchronously with a continuous washer, the handling and trucking of the goods between operations would be eliminated resulting in a further saving of labor.



Hunter Continuous Fulling Mill



Hunter Model GK Dolly Washer

Recapitulating the advantages of the continuous mill, we have:

1. More uniform fulling and the elimination of the human factor.
2. Greatly increased production due to the fact that once the mill is started up in the morning, it continues to produce every minute of the day that it runs. There is no loading or unloading time for each set of goods and it is only necessary to sew on the pieces at the feed end of the mill.
3. It greatly reduces the chance of mill wrinkles forming in the cloth due to the fact that the cloth is reversed and changes position under the rolls each time it is reversed which accomplishes the same thing as taking the pieces out and turning them around in an ordinary fulling mill.
4. There is no chance of tangling in the mill because the cloth is always being pulled off the top of the pile at each end rather than from the bottom of the pile as in an ordinary fulling mill.
5. Lengths of cuts do not alter or affect uniformity of fulling on different pieces.

Dolly Washer

In the conventional type of dolly washer, no great changes have been made. From a maintenance standpoint, the greatest improvement is the use of rubber covered rolls in lieu of the old type log roll. It is very difficult now to get a good log to make a roll. In Italy I understand they use cement rolls. The rubber roll has a long life and a smaller diameter roll construction of a heavy cast iron shell or extra heavy pipe will give a better squeeze due to the reduction of the nip area. The location of the water feed line and sprays have been given careful consideration and some changes made. It appears to me that if immediately after the goods were

squeezed they could be filled with clean water before they dropped into the dirty or even partially contaminated water in the bottom of the tub. They would not pick up too much dirty water or soap curds and what they did pick up would be on the surface and could be rinsed off with a spray just before the goods entered the rolls again.

Washers have been made deeper to accommodate the longer pieces that are made today, and fitted with anti-friction bearings and many with individual drives. However, it is still difficult to get all pieces uniformly clean. Some pieces, especially the end ones, have all the dirt and soap washed from the center pieces floating by them on their way to the outlet gates.

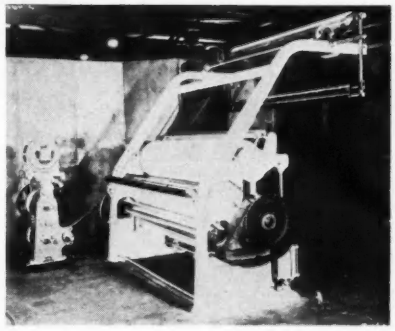
This type of washer is also very wasteful of water, and of steam where warm water is used. In some surveys made by water softening engineers, it has been found that as much as 70 gallons of water is used for every pound of cloth scoured. 40 to 50 gallons is quite common. In wool scouring some concerns have the ratio down to about ½ a gallon per pound of wool.

Continuous Cloth Washer

The continuous cloth washer has made possible a great saving in water, steam and manpower and soap. This machine consists of a number of bowls, preferably 9, each one similar to a dolly washer. It is equipped with rubber covered rolls, suds boxes and whip rolls, outlet gates, water feed pipe, counterflows, liquor level control, etc. The goods enter at one end of the first bowl and pass spirally through the bowl. The goods drop from the rolls into the tub with a slack loop 15 to 20 yards long which gives the goods a chance to open up their folds and absorb the water uniformally and to get thoroughly saturated before being squeezed again. With a 25 yard loop and a speed of 50 yards per minute, the goods have ½ minute to get thoroughly soaked before going to the rolls. As the goods pass through the bowl, say from right to left, the water flows from left to right, so after every squeeze, the goods fall into cleaner water than they came out of. Most of the water used enters the machine where the goods leave, so that the last soak and squeeze is in absolutely the cleanest water used in the operation.

In any bowl, any amount of water squeezed out and caught by the suds box can be permitted to flow to waste through an adjustable outlet gate at the end of the suds box; the liquor level control takes care of the makeup water. All the water not picked up by the goods flows countercurrent to the goods, and runs to waste in the overflow of the first bowl where the goods enter. All the goods have the same treatment and all kinds of tests have shown they are cleaner and more uniformly clean than goods from a dolly washer. The savings in water used is tremendous. Six gallons of water per pound of cloth as agaist 40 to 50 gallons which is the average in the dolly washer. In a 2-hour washing cycle in a dolly washer an 80-yard piece is soaked and squeezed about 150 times. In the continuous washer, the goods are soaked and squeezed 126 times, but due to the diameter of the rolls, the means of applying the pressure and the amount of the pressure, the squeeze is more thorough and efficient and the fact that each successive soak is in cleaner water insures the efficiency of the operation. Speed makes no difference in this machine. The goods have the same number of soaks and squeezes, which actually do the cleansing, if run at 5 yards per minute or 75 yards per minute. Another advantage of this machine is that if desired, one or two bowls just ahead of the last rinse can be fitted with stainless steel lining, suds box, piping, etc., so that these bowls can be used in the continuous operation for speck dyeing or to treat the goods with a little acid. This however, does add slightly to the water requirements.

The machine is equipped with stop motions in case of knots, snarls or short loops, and the driving motor with a brake to stop the machine quickly. A production of 50 yards per minute is easily obtainable with three men. At this speed, one is required at the feed to sew pieces together, one to straighten out the goods and restart the machine if a knot or snarl develops, and one at the delivery end unless the machine is arranged to deliver directly to the scutcher and squeeze rolls, and if the dryer has equal capacity direct to the dryer, then the man who tends the scutcher takes care of the delivery, cutting the continuous washer operators to two. Thus, the machine is a big labor saver, especially on big production.

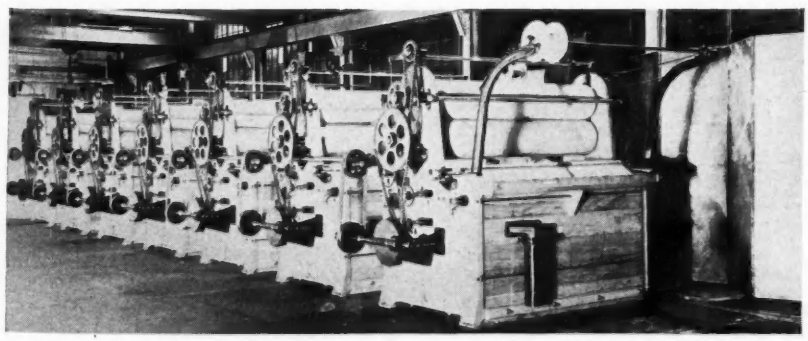


Hunter Cloth Squeeze Rolls

One mill reports a saving in labor of almost 70 per cent. Another mill reports the continuous washer doing the work of 32 dolly washers, saving them 2½ million gallons of water per week with its accompanying saving of salt and pumping costs and 50 per cent savings in soap and alkali and labor, with an efficiency rating on production of 98 per cent.

Extraction

After washing we have extraction. In many mills, squeeze rolls have replaced vacuum and centrifugal extractions. The squeeze rolls are heavy cast iron rolls covered with rubber and weigh two to two and a half tons each. A pressure is applied to the top roll bearings of between 4 and 5 tons on each bearing. This gives an average total load on the cloth of about 21,000 pounds or about 400 pounds on each inch of width. Assuming the width of the nip to be ¼" due to the flattening of the rubber, we would have a pressure of 1600 pounds per square inch. This gives better extraction than a vacuum and better than most centrifugals, especially if the centrifugal is stopped when the heavy stream stops running from the drain. The centrifugal could be run long enough to give better extraction than the squeeze rolls but it would be apt to cause centrifugal wrinkles in the cloth.



Hunter Continuous Cloth Washer

The savings in power is worthy of consideration. A 5 or 7½ HP motor will drive the squeeze rolls and scutcher while the centrifugal or vacuum consume 15 to 40 HP. The labor saving is also worth considering. With a variable speed, the scutcher and squeeze rolls can be run in conjunction with the dryer and in small mills with automatic guides and stops on the dryer one man can tend the scutcher, squeeze rolls and dryer, but where larger production is needed and the operator has to sew pieces together every minute or so, two men are needed. Of course, if the goods are coming from a continuous washer already sewed, this labor is saved at this point. Squeeze rolls are used on fine laces, rayons, wool and worsted fabrics, and even on pressed felts and high pile fabrics and seem to have no undesirable action on any of these types of goods.

Tenter Dryer

Passing on to the tenter dryer, the increased speed of this machine and its capacity to dry more goods in less space with less possibility of damages and with less labor are the results of much thought, development and scientific use of basic physical laws.

In any type of drying in which we are interested, heat is the drying medium and the best way to get heat to the material to be dried is by means of air. The air serves a double purpose, in the first place it carries the heat to the material to be dried and its second function is to carry away the moisture evaporated. In the latest and most efficient type of tenter, the air is carried from the fans over the chain through ducts and blown into a larger duct formed top and bottom by two passes of the cloth. The sides of this duct are formed by sheet metal closures between the tracks. By this means the air passes through the cloth which increases the rapidity of the rate of drying considerably over that where the air currents are blown parallel to the surface of the cloth. Another big advantage of using the ducts is that the air cannot pick up any greasy flock from the chain on its way to the cloth. If it should pick any up after passing through the cloth they are caught by a screen before the air is reheated and returned to the cloth.

Another advantage of this type of circulation is that the air inside the dryer near the panels is under negative pressure so no hot air leaks out to be wasted in the room. The comfort of the operator has also been taken into consideration in the designing of this dryer. The air currents have been directed so they blow away from him.

The fans are all mounted on their individual motors and there are enough of them so that should any trouble develop in either a fan or motor one could be cut out without affecting the production very much.

In the old style dryer with one large motor and fan, if any difficulty with either is experienced, the whole dryer is out of commission and probably the whole finishing department.

Motors are furnished to move everything on the dryer, and the operator with push buttons on his platform has easy control of them. The chain is driven by a motor through a variable speed and the dryer started and stopped by a conveniently placed push button.

The speed can be changed by a motor with two buttons marked fast and slow and by looking at a conveniently located tachometer the operator can get any desired speed he wishes. The width between the pins is also controlled through a motor and push buttons, and an indicator shows the width in inches between the pins. Should the operators mind wander while he is changing the width, limit switches prevent him doing any damage by running the width too far in or out.

Limit switches also stop the drive motor if the cloth does not engage the pins. Motors operated by feelers line up the lead-in with the edge of the cloth so the pins will penetrate the cloth uniformly from the selvedge. If the cloth should follow the pins instead of stripping from them on emerging from the dryer, limit switches are provided to stop the dryer before any damage is done to the cloth.

The construction of this dryer and the design of the chain and tracks have ample capacity to withstand present day speeds. One of these dryers has operated as high as 94 yards per minute on 14 ounce men's wear worsted but, of course, the mill requirements do not demand that production continuously. An automatic chain oiler can be furnished to feed as little or as much oil as is required depending on the speed the chain is run without flooding the chain or starving it.

One mill required five large and fairly modern German dryers to get out their production. Of this modern American machine one large and one medium size machine easily fulfills their needs even though they are greater now than when they had the five units.

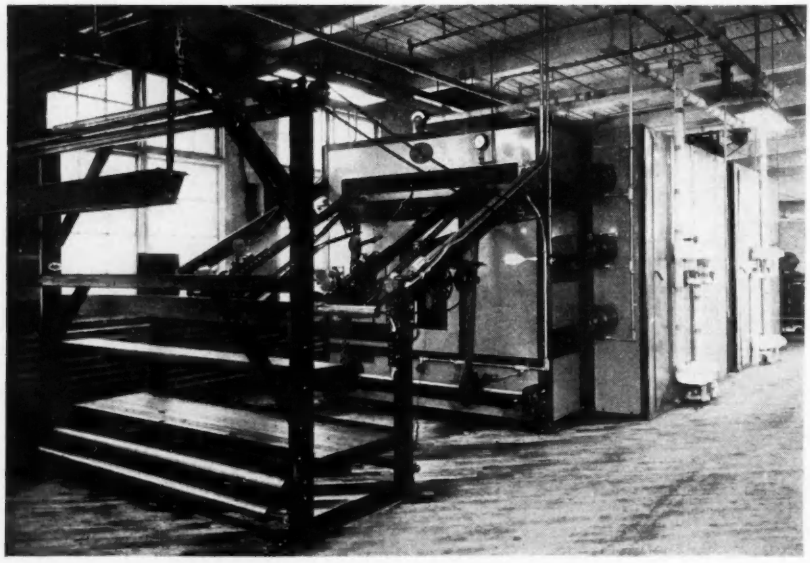
Another feature considered in the design of this machine was to improve the product.

Uniformity of heat distribution was taken into consideration for two reasons. Goods while wet in the presence of heat take the wet bulb temperature. If the heat distribution is not uniform as in old type dryers with coils between the passes of cloth, the goods due to sagging will be nearer the coils in the center and the centers will dry first. This creates two opportunities for side to center shading.

We do not rinse the goods in distilled water so the water we are evaporating may contain some tramp salts, soda, soap, etc.

As the goods dry first in the center these tramps migrate towards the center causing a higher concentration there and affect the shade.

Another cause may be that as the goods dry to between 15 to 20 per cent moisture



Hunter Tenter Dryer

content they will rise in temperature nearer that of their surroundings. If they sag, as they will because they stretch as they dry, the centers will be nearer the coils and be exposed to a greater heat radiation and since the centers dried first they would be exposed longer.

Some shades will darken when exposed to dry heat and that will cause side to center shading.

In another type of dryer where fans blow across the goods from side to side; side to side shading may develop, because one side dries before the other.

The new dryers are economic users of steam required only about 1¾ to 2 pounds of steam to evaporate one pound of moisture while many old ones use 6 pounds of steam. Infra-red electricity and gas have been tried and in some cases are being used but unless they can be obtained very cheaply they are too expensive.

To convert steam into electricity and back into heat entails a high conversion loss and the heat from them is much harder to control.

I have seen white felts dried by infra-red which on the surface looked all right but when they were cut open were found to be badly scorched inside. I suppose the evaporation from the surfaces kept them cool long enough for the inside to get burned.

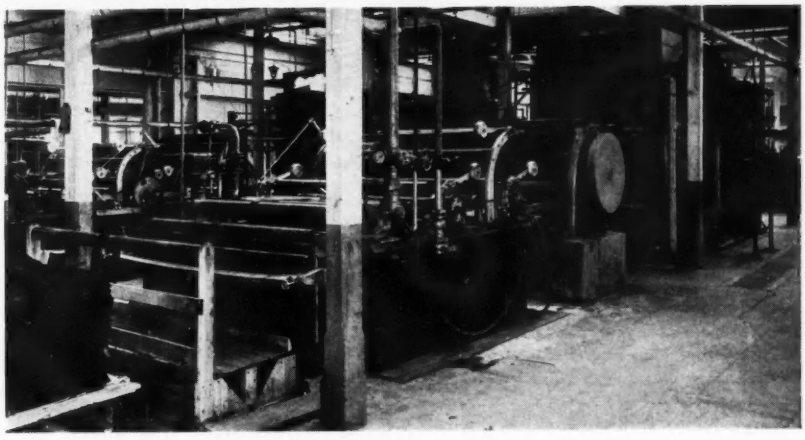
High frequency or di-electric drying on masses such as cheeses of rayon or spools of yarn which are hard to penetrate will speed up the drying of such items but I do not think it will ever become common for tentering. The necessary electrical equipment will be large and expensive.

It will be fast but difficult to control and since we have to tenter, a certain time element must be used to set the goods at the desired width. Goods enter the tenter at varying widths due to practically all the previous operations they have gone through since they were woven. They will come from the loom with a slight variation and more will be added in the mill and washer and handling of the pieces so while we have to set them at as nearly a uniform width as possible, they must be pulled out and held for some time to set this width.

Carbonizing

Cloth carbonizing used to be an operation to be afraid of but with modern machinery it is just another routine operation.

Uniformity of treatment and uniform action resulting from the treatment has been the solution, and it has been the aim of machine designers to build machines to apply uniform treatment to the goods. Providing the goods are delivered to the carbonizer uniformly clean, not necessarily absolutely clean, although the cleaner they are the better, and uniformly wet or dry, uniform results can be and are expected from a modern carbonizing range. Blotches, streaks, and similar variations are sometimes blamed on carbonizing, and in some of the older type machines and methods may have been caused by them, but in a modern machine it is practically impossible to cause such results. If they do appear the reason will be traced back, generally to the washer. It is possible to get some even variations in the present machine due to improper operation, but with automatic controls these possibilities are eliminated.



Hunter Cloth Carbonizing Range

The cloth generally enters the acid tank containing say about 60 per cent of water on the dry weight of the cloth and leaves the tanks carrying about the same weight of acid solution. Therefore we are replacing the water in the tank automatically but not the acid. The strength of the bath gradually becomes weaker and this has a tendency to vary the amount of acid in the goods end to end. The variation may not be sufficient to show up in individual pieces but there may be a difference in the first piece run after an addition of acid and the last piece run before the next addition takes place. The method of adding the acid can affect side to side shading. If the operator pours the acid in one side of the tank and it is not uniformly dispersed quickly the side of the goods where the acid was added will pick up more acid than the other side which will cause a resist in the subsequent dyeing and side to side shading.

The method of determining the acidity of the bath too, if done manually by hydrometer, may be misleading.

In use the bath may build up with some impurities which will have a neutralizing affect on the acid and still build up the hydrometer reading. The operator may think by reading the hydrometer that the bath is all right while actually, it may be too weak.

Automatic acid conductivity controls and a perforated pipe to deliver the acid uniformly across the width of the tank, and another perforated pipe with compressed air to mix the acid and water uniformly can be furnished to eliminate these hazards.

Extraction

Squeeze rolls with the pressure controlled hydraulically or pneumatically have been found to be the best means of obtaining uniform extraction. A gauge indicates the pressure applied and the fact that the cylinders are connected by piping insures uniform pressure on each side. The efficiency of extraction should determine the strength of the acid bath, (the rolls must be reground occasionally to be sure of uniform extraction). Undoubtedly the wool, due to its affinity for acid, takes out of the bath a stronger concentration than that contained in the bath, and due to variations in wool this figure may vary. However, not taking this into consideration, assume that 3 per cent of acid in the cloth gives best carbonizing results, then if extraction of 50 per cent on the dry weight of the cloth, we should have a bath of a 6 per cent solution. If, however, our extraction is to 75 per cent on the weight of the cloth we need a bath of only 4½ per cent.

This illustrates why we must have uniform extraction. If the extraction varies side to side to center we cannot expect uniformity.

In the dryer we must also have uniform application of a gradually increasing temperature.

(Concluded on Page P35)

Third Annual Report of the

Executive Committee on Research*

LEONARD S. LITTLE
Chairman

THE executive committee on research was organized just three years ago. The founder and organizer of AATCC, our beloved and honored Dr. Olney, had directed single handed the research work of the organization as chairman of the general research committee for a period of 22 years. Due to the greatly expanded research work of the association, Dr. Olney requested assistance. In late 1943 the AATCC had grown to a membership of nearly 4,000 members, a general research committee of over 75 members, and 36 sub-committees on research of which approximately half are vigorous active groups with the balance classified as reference committees. As you have been advised here at this Silver Jubilee Convention the total membership of the association has now reached and passed the 5,000 goal.

The membership of the Executive Committee on Research has remained intact for its first three years of its operation as was planned. The membership of the committee consists of the President of the AATCC, William Appel, whose counsel has been invaluable; the past President, Thomas R. Smith, our lovable and able Southern industrial leader; and the Director of the Research Committee, our own Dr. Olney who, as previously stated, has borne the brunt of the direction of the association since its beginning. These committee members hold such positions by virtue of the fact that they are holding or have held elected offices in the AATCC. In addition to these are three members appointed by the Council who will begin to be replaced one each year, with no newly elected member serving on the committee for more than three years continuously. Our past President P. J. Wood has graciously suggested that he be the first elected member to retire from the committee. P. J. has served the committee faithfully and has been of inestimable value with his broad technical and practical executive experience in our industry. His counsel and cheerful personality will be greatly missed by his associates. J. Robert Bonnar has been a bulwark of strength serving as Secretary for the full three years of the committee's existence. Too much cannot be said by me as to the invaluable help he has been in every respect. The Council, on the recommendation of the Executive Committee on Research, has appointed Mr. Bonnar chairman of the Committee. He has two more years to serve and can be depended upon for top leadership. The writer retires at the end of this year as chairman, there being a limitation of three years continuous service in the office as well as a limit of three consecutive years for all appointed members after the initial three year period of status-quo. The Council, on Thursday, appointed Samuel L. Hayes of the Piedmont Section to serve in place of P. J. Wood. The choice is most fortunate both as to ability and genial personality as well as the fact that he will represent our Southern members who are a very important part of our association.

Your Executive Committee on Research has taken the new responsibilities most seriously and has worked at the job energetically and, may I state, with a considerable degree of success. Research organization, development and accomplishments rarely proceed as rapidly as one originally plans but this is to be expected from the very nature of the work itself. One of the very first jobs the committee undertook was that of securing the service of a full time Director of Research. We were most fortunate in securing the service of one of our own members, Dr. Harold W. Stiegler, a most able chemist with a background of scientific and industrial experience that is ideally adapted to our research work. Dr. Stiegler had just completed three years of outstanding service to the Chemical Warfare Service. He was awarded for his efforts by an appointment as Lieutenant Colonel. Dr. Stiegler will report† the organization of our research work at Lowell, the work in conjunction with the two Army Research projects, and the research program assigned by our committee to Lehigh University and other outside institutions. He will further report the important improvements in the physical equipment at Lowell Textile Institute where our Research headquarters are located as well as the increase and the improvement in the personnel. Dr. Stiegler is seriously in need of an Assistant Director of Research as well as one or two qualified research workers. Again, I would like to appeal to this General Research Committee to do everything in its power to assist Dr. Stiegler in rounding out his organization.

The Executive Committee on Research has held seven regular meetings each year, one just prior to each of the four quarterly Council meetings and one in between with the exception of the summer period. They have visited all of the sections of the association with the exception of the South Central Section, where our President William Appel represented them, and the Mid-West Section, which it is planned to visit next fall. Dr. Stiegler, since his appointment, has attended our meetings at the invitation of the committee. The executive committee has covered the detail of the work at Lowell, outside institutions and that of the subcommittees with thoroughness which reflected the intense interest every member has taken since the committee was organized. The members have not spared themselves, their time, nor expense in the interest of the association. I cannot speak too highly of their sincere and untiring efforts and complete cooperation.

The research work of the association continues to depend mainly on the work of 17 active sub-committees. The executive committee is encouraging the setting up of these committees on three standard bases, one for a large committee such as the Wash Fastness and the Committee on Dimensional Change of Textile Fabrics. In this type of committee small steering groups have been formed with the general chairman presiding and with a secretary; in addition, sub-committees have been organized with an independent chairman for each and also a secretary to whom sections of the research work are assigned either on the basis of functions or on the basis of fibers or fabrics. The work of

* Presented at Research Committee Meeting, December 14, 1946, Silver Jubilee Convention, Boston, Mass.

† Will appear in a later issue.

each of the sectional committees is being coordinated by the main steering committee. In the case of medium sized sub-committees these function as did the Committee on the Testing of Fire Resistant Textile Materials in Consumer Use with a steering committee to speed up the work of the main committee. The general chairman presides and a secretary serves both groups. In the case of small sub-committees these also will require a secretary as well as the chairman.

It is impossible to pick out any one sub-committee doing the one outstanding job. The Washfastness group under Charles Dorn with its full time worker is actively at its extremely large and important task. Over 60,000 tests have been made to date. We had a very successful meeting sponsored by the Textile Square Club in New York in the early fall for the Committee on Dimensional Change of Textile Fabrics with Dr. Coughlin as chairman. The purpose of the meeting was to get the suggestions and criticism of the trade in the pursuit of the study of proper test methods covering the determination of shrinkage or elongation of fabrics equivalent to actual use experience. The meeting was highly successful with over 600 attending. The Fire Resistance Committee under Dr. Hager has accomplished an outstanding result in developing quite quickly an entirely new and effective test procedure in measuring flamability to meet the urgent need developed through pending legislation both Federal and State. Three members of the committee, Messrs. Hager, Bonnett and Dorn, have traveled to California to discuss the problem with the State Legislators and the State Fire Marshall. Messrs. Siebert on Fastness to Light, Werner on Bibliography, Slowinske on Water Resistance, Kellner on Insect Pests, Barker on Mildew Proofing, Redmond on Fire Resistance (general), Prisley on Detergency, Scull on Fading of Acetate Fabrics and last but not least the outstanding work of Dan Knowland in developing new evaluations for Color Transfer as well as our other outstanding chairmen deserves the highest praise. We have been approached by the Society of Plastics Industry to cooperate with them in the development of test methods for their industry on subjects where we are especially qualified. This work is already under way with Charles Dorn serving as the AATCC Research Coordinator.

We have been quite encouraged at the result of the special research committee already set up by the South Central Section. A special meeting of the executive committee with representatives of the Piedmont Section at a meeting in November at Charlotte developed suggestion for Regional Research sub-committee which is being recommended by the Council to all sections. I quote from Mr. Bonnar's report:

"After considerable discussion, it was finally decided that it might be very practical to set up in each section a Research Advisory Committee, this committee to be appointed by the sectional chairmen. The idea of this would be a two-way flow of information; firstly, when the E.C.R. set up a new research sub-committee, the various sectional Research Advisory Committees would be informed, and then in turn would suggest names of persons who would make good members of this committee so that the E.C.R. would then have a cross section of the members to draw on for the committee in question. Secondly, should the members of any section have some problem which warranted a research sub-committee being formed, they could inform their sectional Research Advisory Committee and they in turn would convey this thought to the E.C.R. It was thought that this, when set up, would considerably aid in cooperation of the members with the Research Committee in general."

It has been with a great deal of pleasure that I served the association as chairman of the Executive Committee on Research during its initial three year period. I again wish to publicly express my appreciation for the fine support given by every member of the committee. The association is truly indebted to each of these men for a fine job well done.

Accelerated Ageing Of Cotton Textiles

Sub-Committee Meeting, Hotel Statler, Boston, Mass., December 12, 1946

KENNETH H. BARNARD
Chairman

AFTER a little hiatus your small committee has the following activities to report on the rather comprehensive quesion of why cotton deteriorates from weathering and what can be done to predict its outdoor life in advance.

Mr. Macormac reported on Quartermaster tests on tentage fabrics at Camp Lee, Virginia, where 11 fabrics in 3 different finishes and in the grey are being exposed both as tents and as individual panels on a rack. The quartermaster had figured on a useful life of 9 months for the FWWR finish, but it has deteriorated so little that it is going to exceed that figure greatly. At the end of three months, no loss in tensile strength was apparent for the FWWR, but both the grey and mineral dyed had lost from 15 to 40 per cent averaging 25 per cent. Early this year (1946) grey, mineral dyed and FWWR fabrics were exposed under 4 filters as follows: (1) all solar radiation absorbed by the filter, (2) ultraviolet and visible absorbed, (3) ultra-violet absorbed, and, (4) no solar radiation absorbed. A careful record was kept for several months of the amount and distribution of solar energy and a climatological study has been going on for some time. These exposures and studies are being continued. Very valuable data on our problem will be collected from this work.

Mr. Appel has discontinued his extensive field tests having found out that samples facing south at 45 degrees failed much more rapidly than those facing north or placed vertically or exposed in the shade. Also, that commercial copper naphthenate accelerates the fabric failure. He is now building a laboratory weathering unit in which two of the factors, radiation and moisture, can be carefully controlled. One interesting finding in his work is that a bleached cotton strip, one end of which is dipped into the distilled water, undergoes a modification at the water level line representing the maximum capillary absorption. A brown color not containing iron forms at this line even without sunlight exposure. The colored substance formed is water soluble and fluoresces under ultra-violet light. Another possibility is investigating the effect of traces of ozone present to the extent of only a few parts in one hundred million.

For the Southern Regional Research Laboratory, Mr. Dean reports that he is now studying the effect of carbon arc radiation, using special temperature and humidity controls to reduce the temperature of the samples from around 100° C. to about 45° C. He points out that carbon arc exposure is subject to many variables, some of which are not fully understood, that a large number of tests must be run to arrive at any positive conclusions. When exposed to natural weather at New Orleans during the warm months of the year, gray cotton cloth has been observed to suffer greater strength losses than bleached cloth of the same construc-

tions because of its greater susceptibility to mildew. Fluidity increase, however, is considerably greater in the bleached samples. A closely woven gray cloth such as army duck has been found to suffer more severe mildewing than occurred during identical exposure in a more loosely constructed fabric of the same weight, probably because the closely woven material retained moisture more persistently. Mr. Dean is convinced that no one test will evaluate weathering properties and the committee would like to emphasize this same point, as the weather itself is too great a variable to expect that any single test or machine will always evaluate it.

Mr. Whitlock, although interested in cordage and not cotton cloth, is working on ageing and as he is also dealing with cellulosic fibers, his results may throw some light on our problem. His material is in a different geometric form, which, of course, is still another factor in our problem. He is checking weathering both by tensile measurements and by flexing-durability, an important factor in the life of the rope. This is also a measurement of fiber brittleness.

This committee is unlike many of the other Research Sub-Committees because we have no standard method of testing to report and the chances of finding such a one are remote. However, it permits a free exchange of technical information otherwise unavailable and suggests methods of approach which are helpful to others working in this field. So little is known about weathering that there is much to be learned and interest in this field is growing as problems on the ageing of unsupported films—quite aside from cotton textiles—may be presented to this committee.

The Colour Index

SINCE the present "Colour Index" was issued in 1924 there have been so many new developments that the British Society of Dyers and Colourists decided that a new, up-to-date edition should be published. Accordingly an Editorial Panel was appointed late in 1945 to undertake the production of a Second Edition, and has been actively engaged on this task for over a year.

As it is a primary object of the British Society to make the new edition as international in appeal as possible, the American Association of Textile Chemists and Colorists was invited to collaborate in its preparation and production. This invitation culminated in the establishment of an editorial partnership, the actual publication to be carried out in Great Britain. The AATCC is taking responsibility for all dyes manufacured in the Americas and the SDC is taking responsibility for all other dye manufacturing countries. In addition to collaboration with the AATCC, contacts have been made with the Society of Dyers and Colourists of Australia, the Canadian Association of Textile Colourists and Chemists and the French Association des Chemistes de l'Industrie Textile. It is planned to include also as much information as possible in regard to the German-made dyes.

It is recognized that the functions of a Colour Index are primarily three-fold:

1. To correlate the different commercial names of individual dyestuffs.

2. To provide information on the mode of application, the fastness properties, solubility, dischargeability, etc., and the established usages of current commercial dyes.

3. To provide information on the chemical structure or components and mode of preparation of technical dyes and, so far as possible, to supply relevant literature and patent references.

With these objectives in view the Second Edition will be divided into three parts.

Part I

Part I will assemble all homogeneous dyes and pigments in current use in groups arranged according to their main usage, e.g. Acid, Direct, Vat, Azoic, Mordant, etc. The data included will comprise commercial names, methods of application, fastness properties, established usage and reactions on the fiber. Details of chemical constitution will not be included.

An important feature proposed for Part I is the sub-division of each usage group into hue groups. This means that all the Direct Yellows, Direct Oranges, Direct Reds, etc., will come together, thus facilitating study with the object of selecting the best dyes for any given purpose.

A simple numbering system will direct a reader of Part I to the chemical data on the dye in question in Part II, provided that the dye has a disclosed chemical constitution or known components.

Part II

Part II will contain the chemical structure of all dyes and pigments appearing in Part I which have a disclosed chemical constitution. These structures will be arranged in an order based on their chemical constitution following broadly the lines of the First Edition. It will also contain available data on dyes which are now commercially obsolete but have a known constitution. In such cases the obsolete commercial names and a summary of past usage will also be included.

On all dyes in Part II data on mode of preparation, literature and patent references related to manufacture or constitution, reactions in substance, solubilities and a brief summary of usages and the hue description will be included. Part II will also contain an up-to-date table of dyestuff intermediates, similar to that which formed so valuable a feature of the First Edition.

Owing to the large increase in the number of known dyes since the publication of the First Edition, a new numbering system will be employed in Part II, and will be made sufficiently elastic so that further additions may be made in later editions without the necessity of complete re-numbering. A simple reference system will direct a reader from any dye in Part II to its complementary page in Part I.

Part III

Part III will contain a commercial names index, alphabetically arranged, of all dyes appearing in Parts I and II; each entry will carry the appropriate Part I and/or Part II references. This section of the work will also be used to accommodate those commercial names which do not qualify for treatment in Parts I or II, owing to, e.g., obsolescence or a scarcity of information. In addition it will contain those mixture dyes which do not qualify for inclusion in Part I.

Cooperation of Dye Manufacturers

The Editors are anxious to ensure that the Second Edition of the Colour Index shall reflect the knowledge of the most authoritative bodies among dye users and color chemists. It is however, axiomatic that the primary source of information is the dye manufacturer, and the Editors

wish to place on record their appreciation of the willing co-operation which they are receiving from dye makers everywhere. They take this opportunity to invite any dye manufacturers with whom contact has not yet been established to write to the

Colour Index Editorial Panel, Society of Dyers and Colourists, 32/34 Piccadilly, Bradford, Yorkshire, England.

Manufacturers in American countries may write to the

AATCC Co-ordinator, William H. Cady, 127 Power St., Providence 6, R. I.

The Editors cannot emphasize too strongly that under no circumstances is disclosure of confidential information expected. Dye manufacturers are asked to be as generous as possible with disclosure within their individual interests of commercial and technical security.

While recognizing that the total effort required to answer all the questions submitted to the dye manufacturers will be considerable, the Editors wish to state that in pursuing this huge task they are putting into effect one of their primary objectives, viz. to effect the dissemination of knowledge concerning the chemistry, physics and technology of color and coloring matters. They are convinced that on the lines so far planned the usefulness of the published work will more than repay the considerable effort which is being expanded. All contributors to the Second Edition of the Colour Index will be partners in an undertaking which will provide a work of reference indispensable to all who have an interest in the science and technology of color and coloring matters.

Committees

The following committees were appointed by the Council of the AATCC to collaborate with the British Editorial Panel in this undertaking, and have been actively occupied for over a year:

Colour Index Committee

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LOUIS A. OLNEY
Chairman, Colour Index Committee

—♦ ♦—

Textile Machinery

(Concluded from Page P31)

Carbonizing Dryer

The carbonizing dryer is so designed that the cloth enters at the lowest temperature in the dryer, and the best results are obtained if this is lower than 180° F. If we expose to too high a temperature, the water evaporation from the surface fibers is too rapid. These fibers then absorb the moisture from the body of the cloth and the water in this moisture evaporates, building up the acid content of the surface fibers causing them to resist the dye and producing shades that appear starved for color because the surface fibers have not absorbed as much dye as the body of the cloth. The air passes through the dryer in the same direction as the cloth, but much faster. Fans and coils the full width of the cloth insure uniform circulation and temperature rise. With this rise in temperature, the air has a greater moisture carrying capacity so that there is no danger of spots on the goods due to condensation.

Cloth as it dries has a tendency to lengthen and in old type dryers a slackness developed which permitted the goods to wrinkle. The folds were slower to dry and moisture migrated to the single areas around the folds and when the goods were dyed, the folded portions showed dark, and where there was a greater concentration of acid due to migration, light areas developed. In a modern dryer, this hazard of slackness is controlled by a patented device which puts a slight tension in the goods lengthwise and prevents wrinkling due to slackness. This tension is adjustable and does not need to be more than 4 lbs. total over the width of the cloth. Should a reduction in tension due to slackness develop, this device speeds up the rolls ahead of the reduction to keep the tension uniform. These newer carbonizing ranges not only give an improved product, they also are capable of increased product with decreased costs. They have also minimized labor. In one plant three modern machines in two shifts with five men per shift are doing more and better work than they were able to get with seven German carbonizing ranges in three shifts with thirty men per shift. A saving of 80 men out of 90.

—♦ ♦—

Coming Meetings, Piedmont Section

THE next two meetings of the Piedmont Section will be held as follows:

April 12th, O. Henry Hotel, Greensboro, N. C., W. W. Gluyas, Chairman.

June 20th and 21st, Summer Outing, Ocean Forest Hotel, Myrtle Beach, Fred Sprock in charge of arrangements.

—♦ ♦—

Mid-West Meeting in February

THE next meeting of the Mid-West Section will be held at the Bismark Hotel, Chicago, on Saturday, February 22nd. This is the regular winter meeting of the section.

Annual Meeting, Southeastern Section

THE annual meeting of the Southeastern Section was held in Atlanta, Georgia, at the Ansley Hotel, December 7, at 7:00 p.m. with 82 present.

O. W. Clark, Calco Chemical Company, gave an interesting and informative paper on "Experimental Studies of Vat Dyeing." After the lecture a film was shown on "A Portrait of an Industry," a Calco film.

Officers were elected for the following year. They were as follows:

Chairman, A. Kempton Haynes

Vice-Chairman, Matthew T. Barnhill

Secretary, Dr. Howard M. Waddle

Treasurer, Allyn J. Morse

Councilor, William B. Griffin

Sectional Committee: Robert O. Simmons, Norman P. Arnold, H. Gillespie Smith, George E. Missbach.

Annual reports were read by the Secretary and Treasurer.

Respectfully submitted,
HOWARD M. WADDLE,
Secretary

—♦ ♦—

Revised Meeting Schedule, N.N.E. Section

THE Northern New England Section announces the following revised schedule of meeting dates for the balance of 1947:

March 21, April 11, May 16, June 13 (Outing), September 26, November 21.

—♦ ♦—

Membership Applications

ASSOCIATE MEMBERS

Lauro G. Arruda—Sales Mgr. Quimanil, Anilinas e Produtos Quimicos, Pernambuco, Brazil.

Owen G. Carpenter, Jr.—Asst. Colorist, General Dyestuff Corp., New York, N. Y.

Hubert A. Des Marais—Pacific Coast Mgr., General Dyestuff Corp., San Francisco, Calif.

ASSOCIATE

Jorge A. Deville—Head of Tech. Serv. Dept., Sociedad Industrial de Colorantes, Lima, Peru.

Arthur J. Henry—Treas., Chemical Products, Inc., New York, N. Y.

Carl F. Hoffman, Jr.—Tech. Investigator, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Cameron Mackenzie—Trainee, Dyestuff Sales, American Cyanamid Corp., Bound Brook, N. J.

Paul T. McNally—Chief Chemist, Oswego Shadecloth Co., Oswego, N. Y.

Paschal E. Redding, Jr.—Assist. Research Chemist, Callaway Institute Inc., La Grange, Ga.

Saymour M. Silver—Gen. Mgr., Majestic Dye House, Inc., Chicago, Ill.

STUDENTS

Wilfred L. Boule—Student, Lowell Textile Inst. Sponsor: E. E. Fickett.

William E. Broadwell—Student, Clemson College. Sponsor: J. Lindsay, Jr.

Daniel F. Callahan—Student, Lowell Textile Institute. Sponsor: E. E. Fickett.

Walter J. Kennedy—Student, Bradford Durfee Tech. Institute. Sponsor. L. B. Coombs.

David Leshin—Student, Philadelphia Textile Institute. Sponsor: P. Theel.

Theodore B. Manheim—Student, Philadelphia Textile Institute. Sponsor: P. Theel.

Theodore B. Manheim—Student, Philadelphia Textile Institute. Sponsor: P. Theel.

Ernest T. McIllwain—Student, Clemson College. Sponsor: J. Lindsay, Jr.

Stuart E. Penner—Student, Lowell Textile Institute. Sponsor: E. E. Fickett.

Roderic W. Rahe—Student, Philadelphia Textile Institute. Sponsor: P. Theel.

Leon E. Seidel—Student, Philadelphia Textile Institute. Sponsor: P. Theel.

Ralph F. Sherriff—Student, Clemson College. Sponsor: J. Lindsay, Jr.

Sidney Stiefler—Student, Philadelphia Textile Institute. Sponsor: P. Theel.

Leon Tigler—Student, Clemson College. Sponsor: J. Lindsay, Jr.

James K. Waits—Student, Clemson College. Sponsor: J. Lindsay, Jr.

Doul A. Wason—Student, Clemson College. Sponsor: J. Lindsay, Jr.

Applications for Transfer to Senior Membership

Ralph E. Hawes, Dorothy M. Lindsley, Bernhard G. Zimmerman.

Meeting Dates

Secretaries of local sections should notify the American Dyestuff Reporter as early as possible of future meeting dates.

CALENDAR OF COMING EVENTS

MID-WEST SECTION
Meeting: February 22. (Bismarck Hotel, Chicago, Ill.)

NEW YORK SECTION
Meetings: January 31, March 7, May 2.

RHODE ISLAND SECTION
Meetings: February 28, March 28, April 25. (Providence Engineering Society Hall, 195 Angell Street, Providence.)

PHILADELPHIA SECTION
Meetings: February 28, April 11, May 23.

NORTHERN NEW ENGLAND SECTION
Meetings: March 21, April 11, May 16, September 26, November 21.
Outing: June 13.

PIEDMONT SECTION
Meeting: April 12. (O. Henry Hotel, Greensboro, N. C.)
Outing: June 20 and 21. (Ocean Forest Hotel. Myrtle Beach.)

RESEARCH COMMITTEE
Sub-Committee Meetings: March 20.
Meeting: March 21.

COUNCIL
Meeting: March 21.

EMPLOYMENT REGISTER

This column is open for four insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association, Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers, who can obtain further information through the code numbers from the Secretary.

46-22

Education: High School.

Experience: 24 years dyeing pile fabrics and yarns of various types.

Age 45; married; references.

• PATENT DIGEST •

Dyeing Apparatus C, 6

U. S. Pat. 2,405,665 (Rocco Nazzaro, August 13, 1946)

The known type of apparatus for dyeing, washing, etc., fabrics in rope-form consists of a tank, supporting an oval driven reel (7) and a smaller, cylindrical, idle driven reel (8) as shown in Fig. 1 of the accompanying drawing. The oval reel has to drop the fabric in a pile (a^1) wherefrom it is drawn again to the oval reel (7), forming a helix (a). The present invention comprises two additional reels (11) and (12) which have to form *another helix*, termed the "extra helix" (a^2). It can be seen from Fig. 2 that the fabric turning in the usual helical way around reels (7) and (8) will ride at the end of this path over the reel (11) and then over the reel (12), called here the "delivery reel" to the tank. Friction or any strain is avoided in the portion of the fabric, situated between the end of the helix and the point where it is taken up again by the reel (7) and (8) which have only to transport the rope around from one end of reel (7) to the other. A rake (10—this number of the drawing seems to have been omitted by error) has to keep apart the single convolutions of the rack.

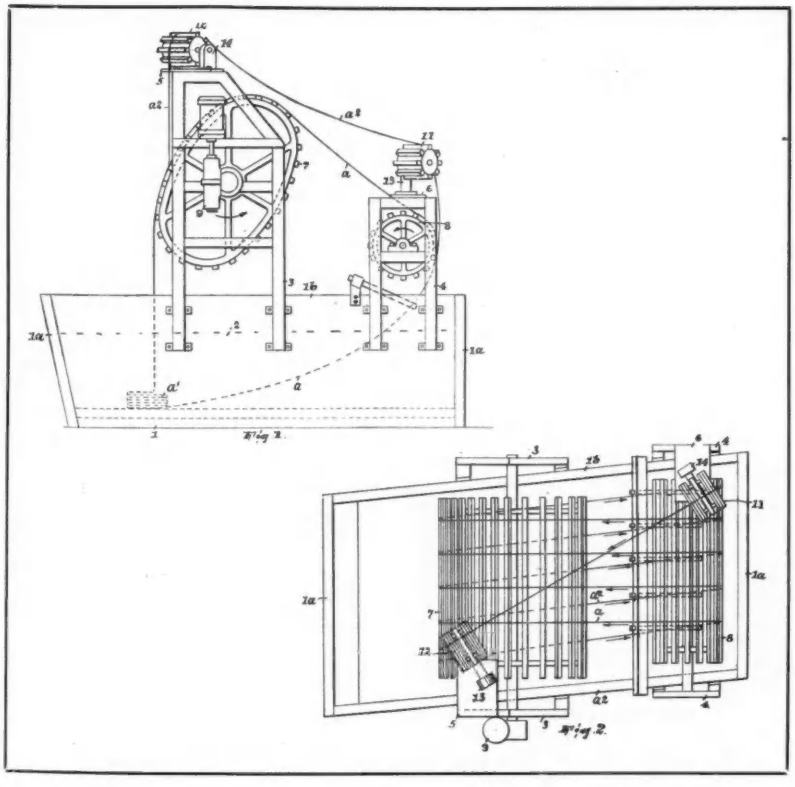


Fig. 2.

PAUL WENGRAF

Vat Prints—Stabilized by Anthraquinoid Compounds D, 2, 01

U. S. Pat. 2,405,151 (Am. Cyanamid Co., Kienel-Amick, August 6, 1946)

Many attempts have been made to improve the stability of vat printing pastes. This specification mentions a .o. ethanolamine, glycerol, glycol, etc., when added to a dyestuff paste or anthraquinone or the so-called "silver salt" (sodium anthraquinone betasulfonate, see below). All these additional products are said to give insufficient results. The present invention proposes to use arylamine salts (especially the aniline salt) of anthraquinone sulfuric acids, the mono- or di-sulfuric acids. Pastes to which these ingredients are added gave a much better color yield. Some dyestuffs used according to the examples are Vat Orange R Powder and Vat Pink FF but obviously a large number of other vat dyestuffs can be substituted for these both brands. U. S. Pat. 2,409,127 (same company and same inventors), issued on October 8th and relating to quinonylamines and derivatives as printing aids, will be reported in the near future.

Earlier Work done in this field: Silver-salt (Beta anthraquinone sulfonate of sodium) to which the specification refers has been proposed by Lichtenstein and Klein (U. S. Pat. 1,919,792) as additional product to vat prints, also as a substitute for formaldehyde sulfoxylate for discharging dyeings. A series of German Patents: 626,862; 627,425; 624,367/68 (I. G. Farben-Berchtold) recommends reaction products of oxy- or aminoanthraquinones with aromatic sulfonylchlorides for the same purpose. For other anthraquinoid condensates in the vat printing field see also Ger. Pat. 628,303 (I. G. Farben-Berchtold), Brit. P. 456,357 (Imp. Chem. Ind.), U. S. Pat. 2,024,973-75 (du Pont) etc.

Non Shrinking Wool—Treatment With Unsaturated Hydrocarbon-Compounds A. 2, 04

U. S. Pat. 2,406,958 (du Pont—D. M. McQueen, Sept. 13, 1946)

The specification mentions former work, done in the field of non shrinking wool. By investigations, made by Speakman, Harris and other scientists, it has been found that the disulfide-linkages (cystine links) of the wool molecule have to be split, in order to obtain non-shrinking wool. This operation can be carried out by reduction with thioglycolic acid and subsequently new and more stable cross-links have to be established for instance by reacting the treated product with alkylene dihalides. The present invention is said to improve the properties of wool not only with respect to reduced shrinkage but also regarding attacks by moths, enzymes and even alkalies. These results are obtained by treating wool in an organic solution of an unsaturated compound plus an halogen. The organic compound must have a terminal methylene group and examples are styrene: $C_6H_5.CH{:}CH_2$ or Acrylonitrile: $CH_2{:}CH.CN$. An example of such a treating bath is 6.9 p. styrene, 1.65 p. iodine, 2830 p. anhydrous ether. After removing the wool material (33 p. wool serge) and washing it with water and methanol about 40% of the cross linkages are no more reactive with thioglycolic acid thus rendered inactive. Still better effects seem to result by the acrylonitrile treatment.

Probably further research will explain the effect of the unsaturated com-

pound, which obviously do not work by themselves but have to be supported by the action of halogen. Regarding the halogen treatment see abstracts to U. S. P. 2,395,724 and 2,395,791 (Am. Dyest. Rep. 1946, p. 336).

Apparatus for Oiling Wool A, 2, 02

U. S. Pat. 2,405,857 (Borne Scrymser Company, Siever, August 13, 1946)

An apparatus for applying oil (also dyestuffs) to raw textile stocks is described. The liquid is deposited on the moving fiber material in the form of fine droplets which are dropped by oscillating U-shaped pipes so that the drops are divided by this vibration into small globules. This is accomplished by conducting the oil to be distributed through a pipe (20) to the U-shaped members (25). A cross section of these members can be seen in Figure 3. The ends of the pipe (20) are closed on either side by caps (35 and 36)—see Figure 2. The spring (37) tends to move the pipe (20) to the right side. By way of the rotating cam (46), which is driven by an electromotor (40-44) and which engages the cap (36) the pipe (20) is pushed to the left until point (50) —See Figure 4—is reached. At the same time cap (35) engages the bearing (18) and by the sudden stop of the pipe (20) the drops, coming from the nozzle portions (26) are broken up into finer droplets.

Earlier references, regarding oiling devices: Kershaw describes in *Rayon Textile Monthly* 1938, January, p. 55, and February, p. 76, different ways of lubricating textiles. He mentions the "plunger" system for controlling oiling of wool and gives a detailed picture of this construction. Further systems are the brush system and the lubricating method by "fingers"—small tubes for dropping oil on wool. The present invention belongs obviously to the last group. U. S. P. 2,053,306 (Celanese) discloses a device consisting of a conical roller, rotating in a trough for softening or piling textiles. U. S. P. 2,101,532 (Armour & Co.): the yarns are covered with a monomolecular film (particularly with such composed of mixed ketones). The device illustrated in U. S. P. 2,188,442 (Universal Winding Co.) shows a roller, transforming the lubricant to the threads. Brit. P. 553,102 1943 (Courtaulds): the lubricant is applied by a capillary tube, which regularly drops the liquid on a wick.

Drying Fabrics—Apparatus G, 3

U. S. Pat. 2,403,630 (Westinghouse Elect. Corp., Blunk-Edwards, July 9, 1946)

The apparatus for drying fabrics may be of some general interest in the field of processing textiles. The characteristical feature of the apparatus has to be seen therein that the drying operation is stopped immediately when the humidity of the goods drops below a pre-determined value. The fabric to be dried is placed in a rotating wire basket (16) and air is

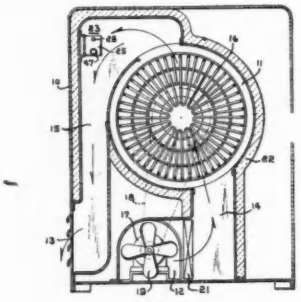
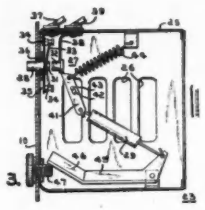


Fig. 1.

led from the outside (12) by a fan (19) through the heater (21) and thereupon through conduct (14) to the basket (16). The moist air is driven through channel (15) to the outlet (13). A *humidostat* (23) is placed in this current. The relative humidity is shown (see Figure 4) to increase after about 20 min. (point B) and to decrease (point C) after the same time. At 20% humidity (point C) a trigger, built in the humidostat is activated whereby two contacts in the system are disengaged (31 and 32 in Figure 3), the electrical current. driving the motor, and thereby the basket and the fan is interrupted and the textile material having a pre-determined humidity can be removed.



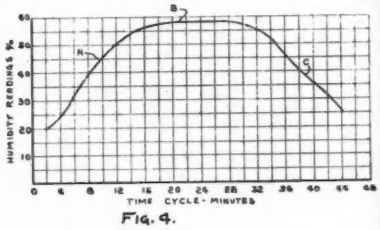


Fig. 4.

Earlier work, done in this field: Ger. Pat. 643,190 (Dirks) suggests to place a meter near the outlet of the conveyor for textile goods. This meter is connected with two switches which are activated by increasing and decreasing humidity respectively. These switches engage in turn different conical gears which regulate the speed of motion through the drying device. According to Brit. P. 409,338 (Calico Printer's Assoc.-Field) the speed of the drying cans is regulated in connection with variations of the eltctric resistances existing in the fabrics of varying moisture content.

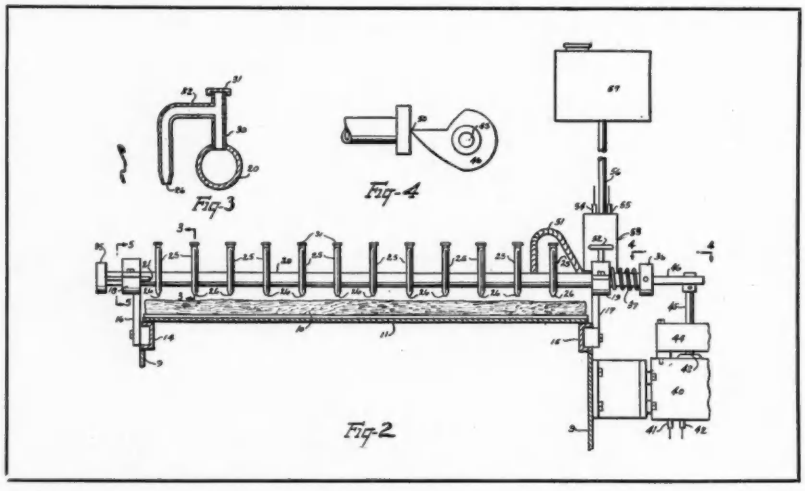


Fig-3

Fig-4

Fig-2

The system of identification and key numbers used for the Patent Digest is explained in the July 1, 1946, issue.

BOOK REVIEWS

America's Fabrics

Origin and History. Manufactured Characteristics and Uses, by Zelma Bendure and Gladys Pfeiffer. Photographic Layout by Crystal Stephen and Fabric Photographs by Nat Messik. Published by MacMillan Co., New York 1946. 686 pages. Price $10.00.

The authors call attention to the fact that more than a thousand different fabrics are made in this country today. The authors have endeavored to give accurate knowledge of the fibers and manufacturing processes, which determine the characteristics of the finished fabric, and thus facilitate intelligent buying, selling and use of modern fabrics.

This book gives as you might say, a birds eye view of the textile industry, starting with the basic fibers, carrying them through the various manufacturing processes of yarn spinning, weaving, knitting, and finally dyeing and finishing.

There are more than one thousand excellent illustrations, mostly original photographs and six full page colored plates which accompany the explanation of printing and dyeing.

Throughout the book the emphasis on the individual values of each fiber brings out the fact that no one fiber or fabric completely replaces any other; and a new classification of modern fabrics that will be more useful to the maker as well as to the consumer is suggested.

To insure complete accuracy, the technical information in this book has been checked by authorities in the fabric and the contributing chemical industries. But in addition to being a complete, reliable and up-to-date source of information, this book is engrossingly interesting. In it you will find not only hundreds of useful facts, but also hundreds of fascinating stories about the development of fabrics which has enlisted men's scientific genius and artistic talents, painstaking skills, labor and mechanical ingenuity since the dawn of history.

Manual of Industrial Relations

By the Staff of the Executive Labor Letter under the direction of Bruno R. Neumann and Arthur T. Jacobs. Published by the National Foremens Institute, Inc., Deep River, Conn. 1946. Price $7.50.

This book will be found instructive and valuable for all superintendents and foremen who have the management of labor.

An outline of the headings of the twelve chapters will give an idea of the scope of the text.

1. Basic Principles.
2. The Foreman.
3. Company Plans and Policies, and the Foreman.
4. Employee Morale.
5. Grievances.
6. Wages.
7. Training.
8. The Collective Bargaining Agreement.
9. Unions.
10. Government Regulations of Labor Relations.
11. Foremen's Unionization.
12. Compulsory Arbitrations.

At the end of the book is (1) an appendix of Foremen Relations, which discusses Foremen Gripes, why foremen join unions, and a suggested program for foremen developed by the Industrial Relations Committee of the N. Y. Chapter of the Society for the Advancement of Management, (2) a list of Labor Unions by Industry and by Numerical Strength, (3) The National Labor Relations Act.

How to Handle Collective Bargaining Negotiations

A confidential manual for management prepared by "'bargaining exports" in collaboration with the editorial staff of Executives Labor Letter. 527 Fifth Ave., New York 17, N. Y. Published by the National Foremens Institute, Deep River, Conn. Price $5.00.

The scope of this book will be indicated by the headings of the eighteen chapters.

1. Why Good Bargaining is Essential.
2. Management Negotiators.
3. Preparing for Negotiations.
4. Wage Data and Counter Proposal.
5. The Counter Proposal.
6. The First Meeting.
7. The Second Meeting.
8. Resolving Contested Issues.
9. Promotion and Merit Increases.
10. Seniority.
11. Unionization of Foremen.
12. The Closed Shop.
13. Clarity of Agreement.
14. Getting the Contract Across.
15. Conditioning the Union.
16. Union Activity Clauses.
17. Preferred Status for Union Officials.
18. Looking Ahead.

Synthetic Fiber Developments in Germany

Report prepared by the Synthetic Fiber Team of the Technical Industrial Intelligence Committee. Compiled and Edited by Leroy H. Smith. 1044 pages and a supplement with twenty-two drawings to accompany the text. Published by the Textile Research Institute, Inc., 10 East 40th Street, New York 16, N. Y. 1946. Price $10.00.

This important publication is the complete official report of the Technical Industrial Intelligence Committee Investigators. Fully described are the manufacturing processes developed by the Germans for the production of viscose, acetate, cuprammonium rayon, and wool-like fibers; also fully synthetic fibers and films. Nearly 250 pages are devoted to polymers and intermediates. Profusely illustrated with photographs and charts.

Neueste Fortschritte und Verfahren in Der Chemischen Technologie Der Textilfasern

Erster Teil; Die Deuesten Fortschritte in Der Anwendung Der Farbstoffe (Hilfsmittel in Der Textilindustrie). Ester Band. By Louis Diserens. 653 pp. Bâsle Birkhäuser. 1946. Price 68 Sw. Fr.

This is the first of two volumes in which the author reviews "Recent Progress and Development in the Chemical Technology of Textile Fibers."

The present volume deals with Recent Progress in the Application of Dyes and the second part (to be published later) will cover "Technological Trends in the Treatment of Textile Fibers."

The introduction outlines the history of the development of dyestuffs and their application, and goes into some detail concerning the development of the rayons, textile auxiliaries, and textile finishes.

The book is divided into five chapters as follows: I, Progress in the Application of Vat Dyes; II, Application of Sulfur Dyes; III, The Indigosols; IV, Progress in the Application of Insoluble Azo Dyes; V, Progress in the Application of Mordant Dyes. These five chapters are followed by a bibliography of the works which the author has consulted, and an index of the dyestuff and chemical manufacturers, a list of all textile auxiliaries mentioned in the text, classified according to the manufacturers and a patent register with 1,526 references comprising American (188), Belgian (2), British (325), Canadian (1), Italian (2), German (630), French (278), Netherlands (1), Indian (1), Japanese (1), Austrian (37), Russian (3), and Swiss (57).

The chapter on Vat Dyes (211 pages) is well illustrated by chemical formulas of the products mentioned, with some detail regarding their preparation. Their use in printing and dyeing is discussed in detail. The author gives some detail re-

garding the more recent "vat acid" process of applying vat dyes.

The chapter on Sulfur Dyes (19 pages) contains information regarding the structure and application of sulfur dyes based mostly on patent literature.

The chapter on the Indigosol Dyes (47 pages) deals with their application and goes into some detail regarding the recently introduced Anthrasol Salt NO and the ferrocyanide method of printing. This chapter also has information regarding the coloration of viscose and acetate rayon spinning dopes.

The chapter on Insoluble Azo Dyes (225 pages) is the most complete dealing in detail with the Naphthols, Bases, Salts, Rapid Fast Dyes, Rapidogenes, Rapidazol dyes, photo rapid dyes, and Neocotone Dyes. Very complete tables of products mentioned are given.

The chapter on mordant dyes (88 pages) contains a vast amount of valuable information regarding the dyeing and printing of these dyes.

Mothproofing of Woolen Materials in Europe

Prepared by Werner von Bergen, Consultant, Office of the Quartermaster General, from reports, documents and interviews obtained by the "Textile Team" and "Chemical Team," Technical Service Forces, European Theater, Technical Intelligence Branch, Procurement Division. Published by Textile Research Institute, Inc., 10 East 40th Street, New York 16, N. Y. 1946. Price $1.50.

The entire life cycle of the clothes moth from the egg to the adult moth is described and illustrated with photomicrographs, many of them in color. The progress of fibrous material through the digestive tract of the moth larva and the effect of mothproofing treatments are shown.

Included in this report by a team of investigators is a report describing the status of mothproofing in England and on the continent by Werner von Bergen, also a report by M. L. Crossley which gives the chemical composition and methods of application of Eulan, a permanent type of mothproofing compound developed by the Germans. A comprehensive bibliography covering the field is an important feature.

This report will be of wide interest not only to the manufacturers of woolen materials but to the distributors of merchandise and to those engaged in the treatment of fabrics, such as laundries and cleaning establishments.

Fibrous Proteins

Proceedings of a Symposium held at the University of Leeds on the 23rd, 24th and 25th of May 1946. Published by the Society of Dyers and Colourists, 32-34 Piccadilly, Bradford, Yorkshire. 220 pages. Thirty individual papers upon the following subjects.

President's Address.

A New Approach to the Problem of the Structure of Proteins—An Investigation of a Partial Hydrolysate of Wool.

Modern Technique in the X-Ray Structure Analysis of Fibers.

The Structure of Epidermal Protein.

The Rubber-Like Condition of the Fibers of Animal Skin.

The "Non-Solvent" Water in Hides.

The Division of the Combined Cystine of Wool into Four Subfractions Differing in Chemical Reactivity.

The Supercontraction of Animal Fibers.

The Chemistry of Animal Hair.

Problems in the Microbiology of Protein Fibers.

Water Absorption of Keratin.

A Criticism of Some Theories of Multimolecular Adsorption Applied to Wool.

The Orientation of Macromolecules by Interfaces.

The Use of a Spreading Method Technique in Research on Artificial Protein Fibers.

Interpretation of the Distribution of Sorbed Dye and Other Molecules in Proteins and Plastics.

The Combination of Wool with Acids and Acid Dyes.

Some Physico-Chemical Properties of Damaged Wools.

Colored Metal Complexes of Keratin and Fibroin.

The Structure of Silk Fibroin and Its Bearing on Fibrous Proteins.

The Isoelectric Point of Silk Fibroin.

Equilibrium Between Silk and Aqueous Solutions: Internal Reaction of Silk Fibroin.

The Improvement of the Properties of Casein Fibers by Treatment with Metallic Salts.

The Dyeing of Casein Fiber.

The Extrusion of Filaments from Solutions of Vegetable Globulins.

Some Practical and Theoretical Observations on Felting.

The Action of Fluorine and Fluorides on Wool.

Effectiveness of Oxidation Antishrink Treatments to Acid and Alkali Milling.

Natural and Synthetic Protein Fibers.

Nutrition and Wool Production.

The Shrinkage Control of Wool.

The topics dealt with in this volume show that many industries beside the textile industry have an interest in the behavior of fibers, and will benefit from the knowledge now made available from this scientific attack on a difficult subject. The Society is to be congratulated on its initiative in organizing this symposium and publishing in book form this collection of valuable and stimulating papers.

Additional Copies of the Silver Jubilee Issue (December 2, 1946) are Available at $1.25 per Copy

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Identification of Dyes on Textile Fibers and Detection of Metals in Fibrous Materials, Dyes, and Organic Pigments

By Ellis Clayton, F.R.I.C. Second Edition. Revised and Enlarged. Published by the Society of Dyers and Colourists, 32-34 Piccadilly, Bradford, Yorkshire. 1946.

This is an enlargement and revision of an earlier edition published in 1937. It should prove of great value to color chemists and students.

In particular, the references in the Tables to various chemical classes of dyes seemed to require a clear modern exposition of this system of classification. Consequently, a new Table incorporating this feature, but somewhat divorced from conventional "set-up" is included, together with pertinent notes and examples; it is hoped that this addition will be specially useful to all possessing an adequate knowledge of the complex but fascinating science of dye chemistry. The author is indebted to Dr. C. B. Stevens for various suggestions relating to the new Table; some of them have been adopted, including the introduction of several formulae illustrating in extenso certain groups of dyes in the chemical classification scheme.

Some notes on cellulose acetate rayon dyes, adsorption methods of analysis, a few new specific tests, etc., represent minor additional features, but no attempt has been made to depart from the conciseness of the original contributions.

TRADE NOTES • NEW PRODUCTS

Twenty-Fifth Annual Meeting, SOCMA

THE twenty-fifth annual meeting of the Synthetic Organic Chemical Manufacturers Association was held on December 17th, 1946 at the Roosevelt Hotel, New York City. The following officers were elected for 1947:

President—Ralph E. Dorland

First Vice-President—Dr. Elvin H. Killheffer.

Second Vice-President—Dr. Eric C. Kunz

Treasurer—C. M. Richter

Additional Board Members:

Class of 1947—V. E. Williams, Dr. August Merz

Class of 1948—Dr. Harold L. Simons, Harold W. Dingee

Class of 1949—Dr. Wyly M. Billing, George W. Burpee.

The following meeting dates up to the spring outing were announced as follows: February 11, March 12, April 9, May 14. The outing will be held on May 26, 27 and 28 at the Seaview Golf Club.

A social hour followed the business meeting and preceded the dinner. Murray Shields, Vice-President and Economist of the Bank of the Manhattan Company, was the guest speaker and his address was entitled: "Prosperity—We Can Have It If We Want It."

• Charter Member, AATCC

We have been informed that the name of A. Moody Burt was omitted from the list of Charter Members of the AATCC which was published in the Silver Jubilee Issue. Mr. Burt is the Carolina-Virginia representative of Nova Chemical Corp. His dyestuff career began with Berlin Aniline Works in Charlotte in 1912 and he was later with A. Klipstein & Co. in Charlotte. He went with the Celanese Corporation in Philadelphia in 1927. Mr. Moody has been continuously active and interested in the AATCC and served as chairman of the Philadelphia Section in 1929-30.

• Laundry Institute Campaign

The American Institute of Laundering the industry's national trade association, believes it has the solution to its primary public relations problem in a long-pull campaign designed to fill the growing national laundry bundle with washables that are washable in *fact* as well as in name.

Built around the Institute's Certified Washable Seal Program, the campaign will be directed first toward the textile and cutting-up trades and retailers of washable merchandise through a series of business paper advertisements which broke in January. The aim is to induce additional manufacturers to meet the Certified Washable Seal standards and thereby join the list of leading manufacturers presently entitled to put this Seal on their products and display it in their advertising.

Once the groundwork is thoroughly laid, the campaign will be taken directly to the consumer in national advertising with the admonition, "When you buy washables, be sure you get washables."

Business volume for the industry in 1946 is estimated at an all-time high of $700,000,000. Yet the laundryowner has found his troubles increasing as his volume has boomed. It is stated that the laundry always gets the blame for the dress that fades, the shirt that shrinks, and the curtains that fall apart. The laundryowner says it isn't his fault. The blame lies, he claims, with fabrics that are not properly woven; fugitive dyes that just won't wash and clothing that is not well constructed.

The laundry industry feels that its troubles will decrease in proportion to the increase in the number of products that qualify for the Seal. First introduced in 1925, the Seal program was stymied by war-time scarcities. With the reason for inferior merchandise behind us, the laundry industry holds that all washable merchandise can now be made "truly washable."

The Seal is awarded only after thorough tests in the laundry as well as the laboratory. The more manufacturers who make their product of a quality that will pass these tests, the more the public realizes the value of the Seal, the higher will be the percentage of truly washable goods in the average laundry bundle. As the percentage goes up, the laundry's troubles will go down.

Backing the Seal campaign is one of the oldest and most closely knit trade organizations in the country. The American Institute of Laundering was founded in 1883 and now numbers nearly 4,000 member laundries. These laundries do 85 per cent of the Seven-Hundred-Million-Dollar professionally processed laundry volume of the nation.

The testing facilities available for the technical phases of the Seal program are unique. These facilities are part of a million-dollar "proving and improving ground" for the industry located at Joliet, Illinois, just outside Chicago. In these facilities new fabrics, as well as the old ones, are constantly tested for their "washability factors" and new methods currently developed for their successful processing in the laundry. Besides extensive laboratories, the plant includes a complete operating laundry. Products accepted for the Seal award must pass not only "test tube" standards but must stand up under actual laundering conditions in a standard laundry plant.

As the campaign for "washables that are washable" gains momentum on a national scale, it will be pushed locally through a dealer-ad type of promotion by the individual laundries.

• Calco Sales Representative

John W. Pfeiffer, who has been appointed a sales representative of the Dyestuff Dept., Calco Chemical Division, American Cyanamid Co. He will call on the leather industry in the Metropolitan and Philadelphia territories.

Born in Warsaw, Poland, Mr. Pfeiffer is a member of a family which for eight generations has been engaged in leather manufacturing. He was chosen to represent the Polish leather industry at the Polish Pavilion at the World's Fair, in New York. After the outbreak of war in Europe he joined the Calco Sales Application Laboratories at Bound Brook. He entered the armed forces in 1943 and rejoined the Calco organization in July, 1946.

Laundries spent $7,000,000 in local advertising last year. A good part of this year's budget is expected to go toward Seal promotion. The Institute is making help available through newspaper mats, direct-mail pieces, laundry bundle inserts and radio and outdoor advertising counsel.

The industry also is counting on its weekly contacts with 32,000,000 regular laundry users to carry the word on "When you buy washables, be sure you get washables."

Donahue & Coe, Inc., New York City, is advertising and merchandising counsel.

• Dan River Booklet

Dan River Mills, Inc., is distributing to the industry a 32-page booklet on the "Fiber Bonded Processes." This booklet contains a description of the processes together with illustrations of the newest models of machinery, verbatim copies of the patents, and the license agreement. Copies may be obtained from the Research Engineering Division, Dan River Mills, Inc., Danville, Va.

• Spring Textile Courses at Columbia

H. R. Mauersberger, in charge of Evening Textile Courses for the past 21 years, announces that registration for the Evening Textile Courses Spring term at Columbia University began one week earlier, i.e., on Jan. 22nd and extends through February 1st. Instructors of these courses can be interviewed any evening from 7-8.30 P.M. in Room 301, School of Business, 116th Street and Broadway, New York City. G.I. students are advised to register early and appear in person at the Registrar's office, East Corridor, University Hall. New students will be accepted in 2 courses, i.e., "Coatings and Finishes on Fabrics" by Marcel Pagerie and "New Synthetic Textile Fibers and Materials" by H. R. Mauersberger. All other courses are continuations of Fall courses and admission requires experience in the trade and consent of the teacher of *each* course. These courses are on Cotton Goods Converting; Converting of Rayon and Spun Rayon Fabrics; Woolen and Worsted Manufacture; Identification, Analysis and Testing; and the Textile Dyeing course. The first lecture in each course will be given during the first week in February. Write to the Registrar for a special free folder on these courses or phone Murray Hill 4-1159.

• New England Manager, Carbic Color

Thorwald Larson who has been appointed New England Manager, Carbic Color & Chemical Co., effective January 1, 1947, succeeding Herbert Kuhl who has resigned. Mr. Larson has been Southern Manager for the past three years. He graduated from M. I. T. in 1928 with a degree in chemistry and has worked as chemist at Jackson Laboratory and the Chambers Works of the DuPont Company; United States Finishing Co.; Uxbridge Worsted Co.; American Printing Company and Calco Chemical Co. (Providence office), before joining Carbic in 1938. Mr. Larson will make his office at 68 Pine Street, Providence 3, R. I.

• Appointed Chief Chemist

G. A. LaVallee, manager of the Marietta, Ohio Works, of the Calco Chemical Division, American Cyanamid Company, announces the appointment of Dr. Glenn S. Watson as chief chemist. Dr. Watson, a native of Masontown, West Virginia, obtained his Bachelor of Science degree at West Virginia University in 1930, his M.S. in 1931 and Ph.D. in Chemistry in 1936.

Dr. Watson joined the Calco organization in 1936, and was for some time connected with the Research Laboratories of the company and prior to his present appointment has held the post of an Assistant Divisional Chief Chemist at the Bound Brook, N. J. plant.

• Arnold, Hoffman Plant Manager

Arthur H. Noble, Jr. has been appointed plant manager for Arnold, Hoffman & Co.'s new Southern plant at Charlotte, North Carolina.

Mr. Noble graduated from Brown University in 1938 and has been associated with Arnold, Hoffman & Co. since that time. He has obtained a broad manufacturing experience in the company's Anchor Division at Dighton, Massachusetts in all control laboratories and production departments.

After having served for three years of the war in both the European and Asiatic Theaters of operation as a Lieutenant with the U. S. Navy, in January 1946, Mr. Noble returned to the firm. For the past year he has devoted his time to research and development work in connection with new products and the construction and design of the Charlotte plant.

Mr. Noble will make his home in Charlotte soon after February 1, in anticipation of starting the plant in April.

• Testimonial Dinner

A testimonial dinner attended by the entire sales force of Apex Chemical Co. Inc., New York City, and their wives, was given at the Hotel New Yorker Terrace Room on December 29, 1946, to John R. Hinchcliffe, for 35 years a member of the selling staff in the New England territory.

Enroute to Florida to enjoy a well earned leave of absence, Mr. Hinchcliffe received the tribute of his many life long friends and associates, and the best wishes of all for a very pleasant vacation.

• Joins American Viscose

Arthur N. Tingley has been named head of the Textile Chemicals Division of the Textile Research Department, American Viscose Corporation, Marcus Hook, Pa., it is announced by the company. Mr. Tingley, who has been working on yarn finishes for the department's knitting division, assumed his enlarged duties on January 1.

The functions of the textile chemicals division will be to develop new lubricants and sizes for rayon and other fibers, new methods of applications of these materials, and to service present products such as Avconit, Avcosew and Avcodisk, which have been developed by American Viscose Corporation's textile research and chemical research departments and manufactured by the Atlas Powder Company.

It is planned that these activities of the division will render a distinct service to trade needs and will assist, at the same time, all of the textile research department's divisions in their problems concerning lubricants, sizes and finishes.

Before joining American Viscose, Mr. Tingley, a graduate of Massauchusetts Institute of Technology, was director of the Textron, Inc. control laboratories. He was also associated previously with At-

lantic Rayon Corporation, as chemist and dyer, and with Warwick Mills and Plymouth Cordage Company.

• duPont Officers Change

Irenee du Pont, former president, and H. G. Haskell, former vice president, of E. I. du Pont de Nemours & Company, have resigned from the Finance Committee of that organization, while J. Thompson Brown resigned from the company's Executive Committee and from his position as a vice president. All three remain on the Board.

At the same time it was announced that the two vacancies on the Finance Committee will be filled by Mr. Brown and Elwyn Evans, president of the Wilmington Trust Company and a Du Pont director. Mr. Brown's place on the Executive Committee will be occupied by Charles A. Cary, assistant general manager of the company's Rayon Department. Mr. Cary was elected to membership on the Board of Directors, increasing its membership to 37, and was also made a vice president.

The designation of Mr. Evans as a member of the Finance Committee rendered him ineligible to continue as chairman of the company's Committee on Audit, and Jasper E. Crane, until his retirement earlier this year a vice president and member of the Executive Committee, was chosen by the Board to serve as chairman of the Committee on Audit.

The Board also announced that Lammot du Pont Copeland has been named as assistant secretary of the company. Mr. Copeland is transferred from the Development Department to the Secretary's Office.

• Aktivin Merged with Heyden

The Aktivin Corporation was merged with Heyden Chemical Corporation as of the first of December, 1946.

The activities previously carried on by The Aktivin Corporation have been taken over by the Aktivin Division of the Heyden Chemical Corporation. Dr. R. Feibelmann, formerly General Manager of The Aktivin Corporation, will continue in the same capacity in the Aktivin Division.

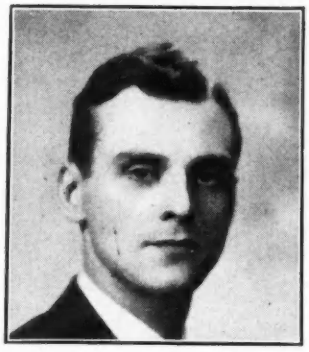
• New York Sales Branch, Stein Hall

Stein Hall & Company, Inc., importers and manufacturers of industrial commodities which are merchandised through the company's nation wide sales organization, announces the opening of a New York Sales Branch office in the Empire State Building, New York City.

Enlargement and reorganization of the Company's New York sales staff to care for a growing business in the metropolitan area required more space than was available in the home offices at 285 Madison Avenue.

The New York Sales Branch, under the direction of C. J. Dunachie, manager and E. M. Clevan, assistant manager, will serve accounts in the metropolitan area and surrounding territory through its staff of technically trained salesmen.

• Monsanto Sales Promotion Representative



Richard C. Urban, formerly with the North American Rayon Corp. and Rohm & Haas Co., has been appointed sales promotion representative in the New York area for the Textile Chemical Dept., Merrimac Division of the Monsanto Chemical Co. His duties include promotional work with textile converters in Monsanto's quality control program for its textile chemicals.

• Scheer Chemical Co.

Walter E. Scheer announces the formation of Scheer Chemical Co., Inc., on January 1, 1947. The new company will act as manufacturers' agents and technical sales and market development consultants for chemical manufacturers in the fields of plastics and plasticizers, surface active agents and fine chemicals. Offices of the company are located at 60 East 42nd St., New York 17, N. Y., where the telephone is MUrray Hill 2-1941.

Mr. Scheer was employed by the Commercial Solvents Corporation for a number of years in market development and technical sales capacities, and for the past several years has been vice president of Amecco Chemicals, Inc., as well as assisting in the work of Amecco's affiliate, the Hardesty Chemical Co., Inc.

• Sun Chemical Appointment

The Overseas Division of the Sun Chemical Corporation announces the appointment of Natural Products Corporation, 738 Marin Avenue, Montreal, Quebec, Canada, as exclusive Sales agent in Canada for products of the Warwick Wax Company, subsidiary of Sun Chemical Corporation.

Natural Products Corporation will introduce into the Canadian market Cardis 319 the new emulsifiable petroleum wax which is said to be finding wide use in the United States as an outstanding replacement for high-priced vegetable waxes.

• Foxboro Exhibit, Silver Jubilee Convention

Shown above is the exhibit of The Foxboro Company at the recent Silver Jubilee Convention of the AATCC in Boston. The standard and more familiar Foxboro instruments for measurement and control were represented by bulletins, while demonstration space was devoted to two new features in the Foxboro line. One was a Universal Portable Dynalog Resistance-type Recorder, connected by an external multi-point switch to measure and record temperature (using the conventional bulb and also a new, fast-acting, flexible element for measuring surface or atmospheric temperatures); dew point (absolute humidity), conductivity, pressure, force, and load.

The other special feature was a pedestal-mounted stainless steel CycleLog Process Cycle Controller, an instrument recently developed for complete automatic control of batch operations such as textile dyeing, in which rate of temperature rise is an important factor.

Both types of instruments are described in bulletins, available on request from The Foxboro Company, Foxboro, Mass.

• Joins Colonial Mills

James A. Hopwood, of the Textile Research Department, American Viscose Corporation, Marcus Hook, Pennsylvania, has resigned his position as head of the department's dyeing and finishing division to join Colonial Mills, New York, and assumed his new duties on January 15.

Mr. Hopwood, who joined American Viscose Corporation in 1939 as a member of its textile research organization, is well known for his technical and practical assistance to the trade during the recent development toward the stabilization of rayon fabrics. In addition to his duties as head of the department's dyeing and finishing division for the past six years, he represented the department on two trips to Mexico and one to the United Kingdom.

Prior to his joining American Viscose Corporation's textile research department, Mr. Hopwood was associated with Bradford Dyeing Association and had charge of that company's dyehouse for a period of 15 years.

• Rexan O

"Rexan O" is a dyeing assistant which is said to promote level dyeing and improve the penetration of the dye bath when used in the dyeing of cotton, viscose, acetates and other fibers. It is recommended by the manufacturers in the dyeing and stripping of vat dyestuffs and to protect the bath from the effects of hard water.

According to the announcement from the Dexter Chemical Corporation's Textile Chemical Division, "Rexan O" is a clear viscous liquid that is readily soluble in cold and warm water. In the dyeing of direct colors on cotton and rayon it is said to promote levelness and penetration while at the same time keeping any lime soap or other precipitations in a dispersed condition. It is claimed to be especially helpful in padding piece goods where certain dyestuff combinations tend to give unlevel results. Concentrations of from two to eight ounces per hundred gallons will give the desired results.

When dyeing basic dyestuffs, it is stated that the addition of small amounts of "Rexan O" will enable the dyer to obtain more level dyeings and its retarding action will also tend to reduce the bronziness and poor rubbing fastness often encountered. One pound of "Rexan O" per hundred gallons of basic dye liquor is has been especially successful in the field usually sufficient for desired results.

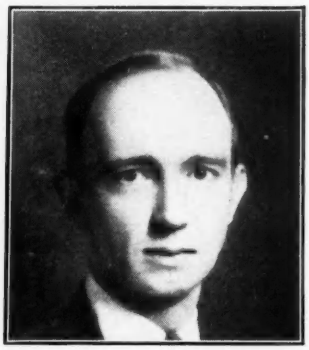
It has been found that this product has been especially successful in the field of vat-dyeing and added to the dyestuff it is said to retard the rate of exhaustion in the important first few minutes of the operation and does not impair objectionably the total color yield on the fiber.

This product is said to be more convenient to use than glue and at the same time it prevents accumulation of oxidized vat colors on the surface of the dye-bath.

"Rexan O" when added to acetate dyebaths will, it is claimed, promote even-exhaustion of the bath and when added to stripping baths (both on direct and vat-dyed fabrics) will improve the rate of stripping and—in the case of the vat-dyed—give more uniform results.

Specific formula for the use of "Rexan O" in any of the above-mentioned operations are available on request to the Dexter Chemical Corporation in New York City at 819 Edgewater Road.

• Technical Representative, Carbide & Carbon



Dr. A. H. Tenney, who has recently returned to the New York offices of Carbide and Carbon Chemicals Corporation as a technical representative for the Fine Chemicals Division. He will specialize in the development of markets for new chemicals being developed by the research laboratories.

Dr. Tenney has just completed three and a half years with the Manhattan Project at Oak Ridge Tennessee ,and was previously associated with Carbide and Carbon Chemicals Corporation in a sales development capacity.

• duPont Rayon Personnel Changes

The Du Pont Company has announced appointment of Robert L. Richards as assistant general manager of the Rayon Department and a series of other personnel changes in that department.

Willis Shackelford, manager of the Acetate Division, succeeds Mr. Richards as an assistant manager of the department.

Dr. G. W. Filson, assistant manager of the Rayon Division, succeeds Mr. Shackelford, as manager of the Acetate Division.

George E. McClellan, director of production of the Rayon Division, succeeds Dr. Filson.

Mr. Richards succeeeds Charles A. Cary who was elected a vice president, director and member of the company's executive committee on December 16.

• Hercules Appointments

Dr. John M. Long, formerly manager of the sales research division of Hercules Powder Company, has been appointed special assistant to the general manager of the Paper Makers Chemical Department.

Carl W. Eurenius, control supervisor of the Cellulose Products Department, has been appointed manager of the sales research division.

• Board Members, U. S. Testing

At the December meeting of the Board of Directors of the United States Testing Company, William Fraser, Treasurer of J. P. Stevens & Company and James A. Linen, Publisher of Time Magazine, were elected to the Board.

• Frank A. Canon Retires

Frank A. Canon, manager of the New Brunswick Works of the Fine Chemicals Division of the Organic Chemicals Department since July 1, 1931, retired from the Du Pont Company on Jan. 1. He was succeeded by Robert C. Lyon, service superintendent at New Brunswick since May 1, 1943.

Mr. Canon, a native of Philadelphia, started his chemical career in 1911, on graduation from the Pennsylvania State College, as a cadet engineer with the United Gas Improvement Co. of Philadelphia. He became chief chemist of the 25th Ward Gas Works in Philadelphia in 1912. In 1918 he went with The Barrett Mfg. Co. at Edgewater, N. J., as a research chemist.

During the following three years, he was, part of the time, in charge of experimental plants. He joined the Selden Co. of Pittsburgh in 1921, being put in charge of production. On December 1, 1930, he became research chemist for The Newport Chemical Corp. at Carrollville, Wis., and a few months later became works manager at New Brunswick. When the Du Pont Company acquired the Newport company, Mr. Canon continued as manager.

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Ask your Calco representative for full details on this group of metallized dyes for carbonized wool. Our Technical Service Staff will gladly assist you with the application of Calcofast wool dyes. CALCO CHEMICAL DIVISION, AMERICAN CYANAMID COMPANY, Bound Brook, New Jersey. New York, Chicago, Philadelphia, Boston, Charlotte, Providence.
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ON ITS RECORD for Scouring or Boiling off all types of fabrics!

ON ITS RECORD as a dyeing assistant or a dispersing agent for all classes of dyestuffs!

ON ITS RECORD for washing off after printing!

ON ITS RECORD for wool processing as a soap assistant!

ON ITS RECORD — ask for complete data and a sample of **ATCOSYN.**

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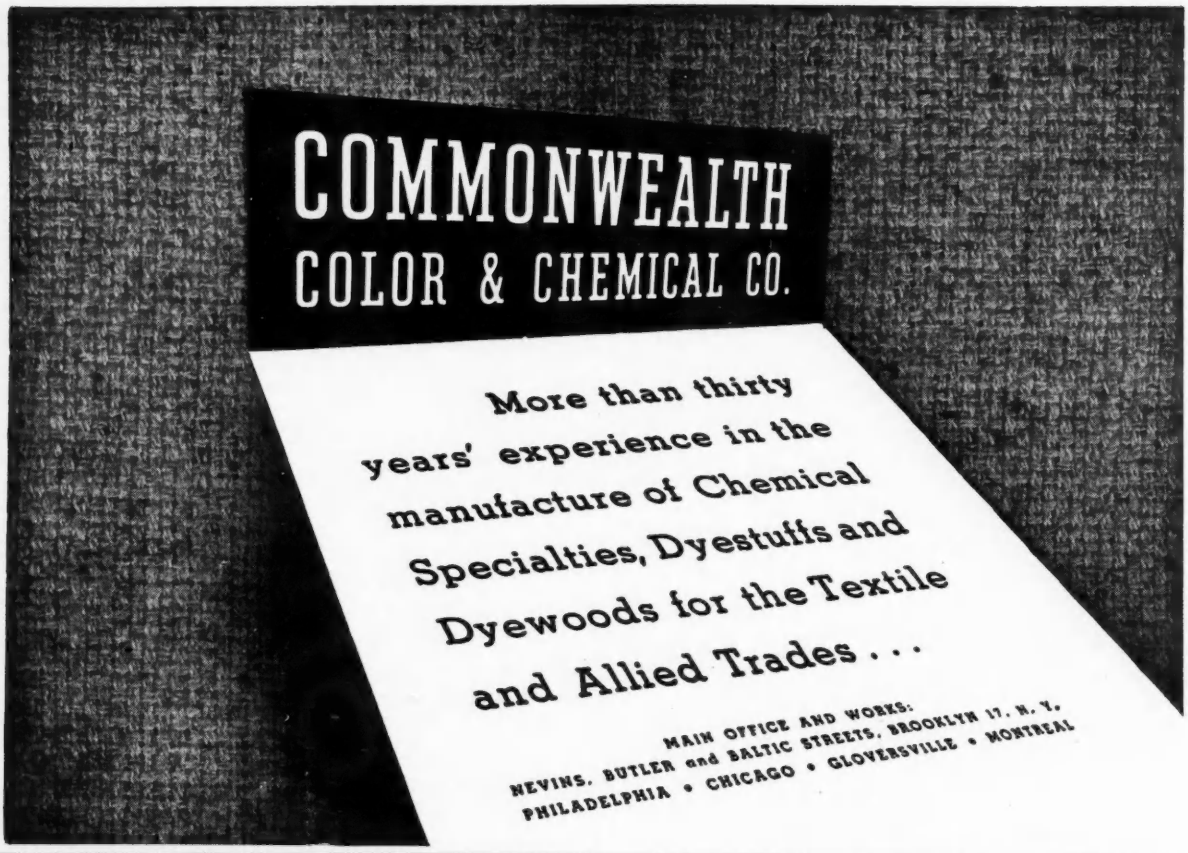
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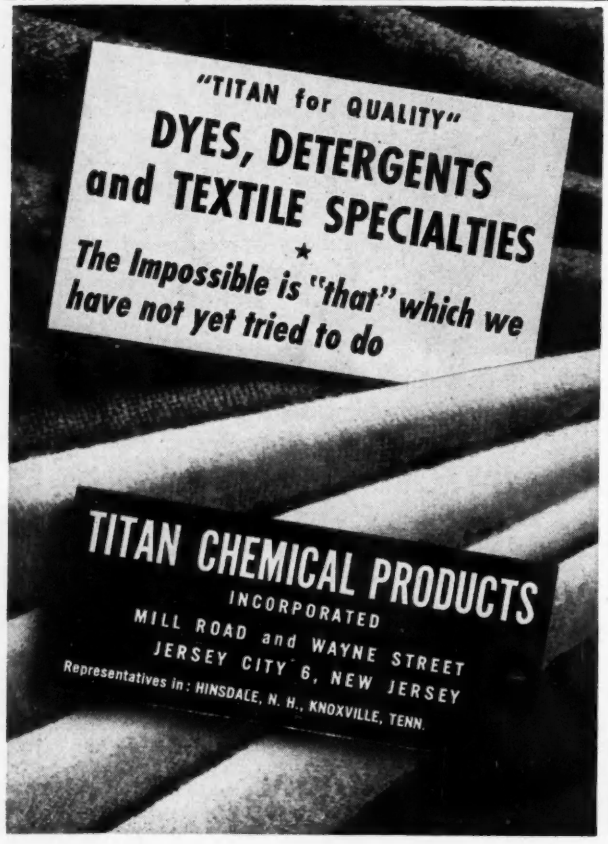
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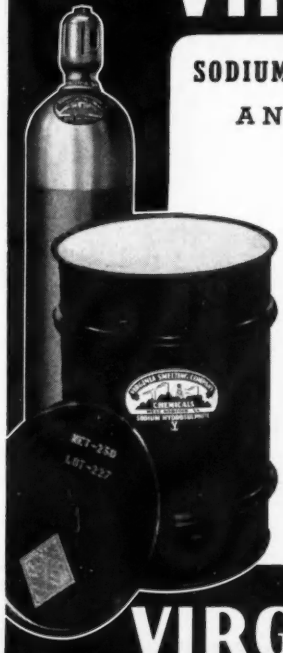

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WANTED: SALESMAN - TECHNICIAN, man with broad experience in both selling and technical "trouble shooting" to call on textile mills, also on paper industry, as representative of highly regarded, old established chemical firm. State full details. Write Box 163.

POSITION WANTED: Textile Chemist and Colorist. Over 15 years experience in textile laboratory work. Thoroughly familiar with printing, dyeing and padding of all fibers and current plant practices in application and finishing. Also some resin experience. Interested in new research, technical sales or application laboratory. Write Box 159.

WANTED: Hussong propeller unit, individual drive preferred but not required. Give price, condition, age, type and metal in first letter. Write Box 166.

WANTED TECHNICAL DIRECTOR: To head up laboratory staff of fifteen and work closely with top management in all control and research problems. Manufacturer with tremendously expanding volume and constant development of new products. Location, Middle West. Experience in such fields as paper and textile coatings, fiber impregnations, oils, varnishes, resins, etc. is essential. Administrative experience would be valuable. Man we want is now holding a responsible position. This is a big job with a big future. Our organization knows of this ad. Write giving full details and salary. P. O. Box 83G, New York, N. Y.

WANTED: SALES REPRESENTATIVES: Manufacturer of complete line of chemical specialties offers good opportunity for experienced salesmen. Territories open—New England, Pennsylvania, Metropolitan New York and the Carolinas. Give complete information—include age, selling experience, education, etc. Write Box 167.

WANTED: An experienced Textile Chemist as senior instructor in textile chemistry and dyeing and related subjects. Write giving full particulars, personal, educational, training, practical experience and other qualifications to the Principal, Provincial Institute of Textiles, Hamilton, Ontario, Canada. State salary expected. Duties to commence about August 1, 1947. Preference given to ex-service men.

POSITION WANTED: Graduated Textile Chemist, 44, married with family, 15 years experience in Dyeing, Printing and Finishing. Able to take full charge of mill operations and laboratory. Desire responsible position with progressive firm. Write Box 168.

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Textile, Mechanical or Chemical Graduate between 25 and 35 years of age for unusual position in production work Must have at least four (4) years of production background with not less than two (2) years of experience in a supervisory capacity. Man selected will be one who has been associated with the production of fabrics. Write Box 169.

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By Large Machinery Exporter. Dyehouse Machinery and Auxiliary Equipment. Also interested in Complete Units.

Write Box 138.

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for de-sizing cottons, rayons and mixed goods

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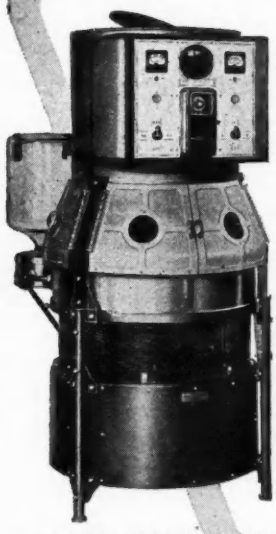

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MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

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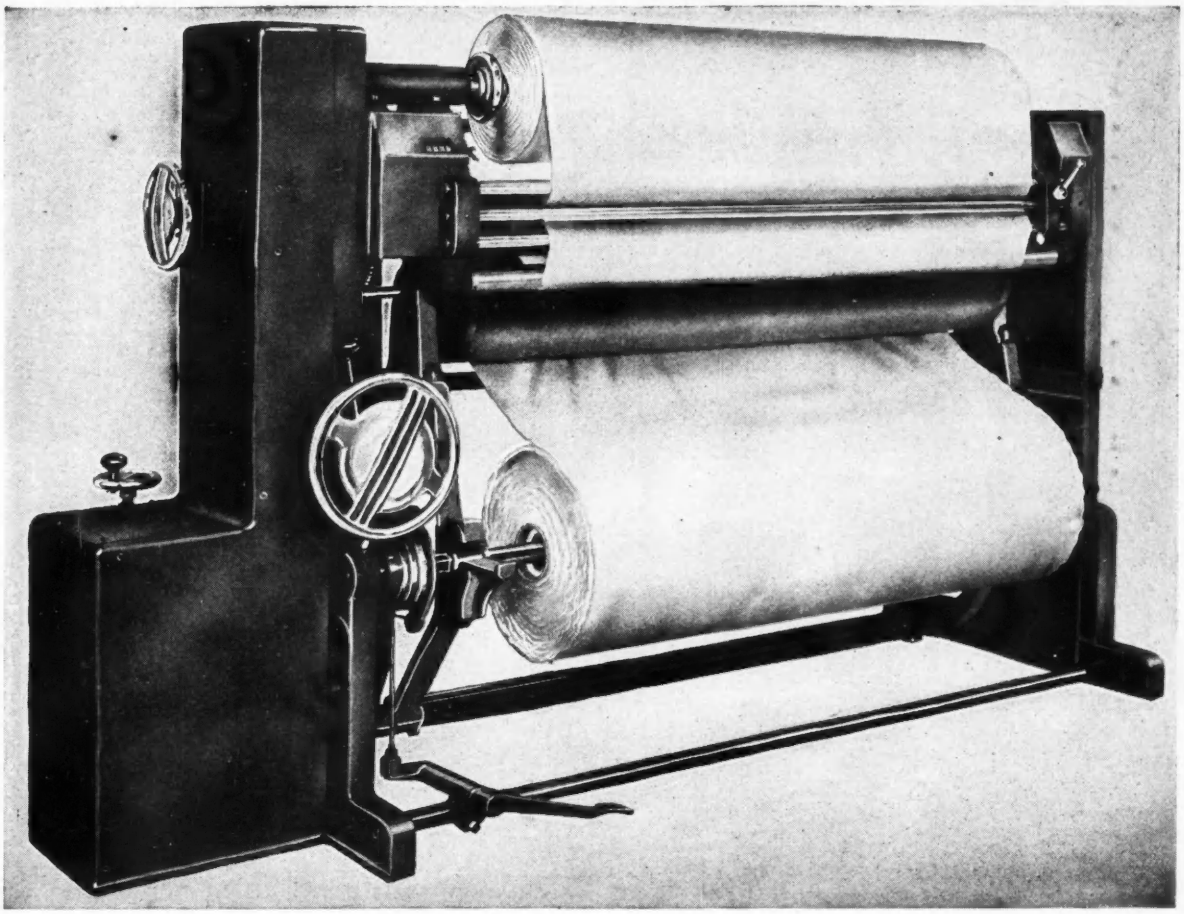

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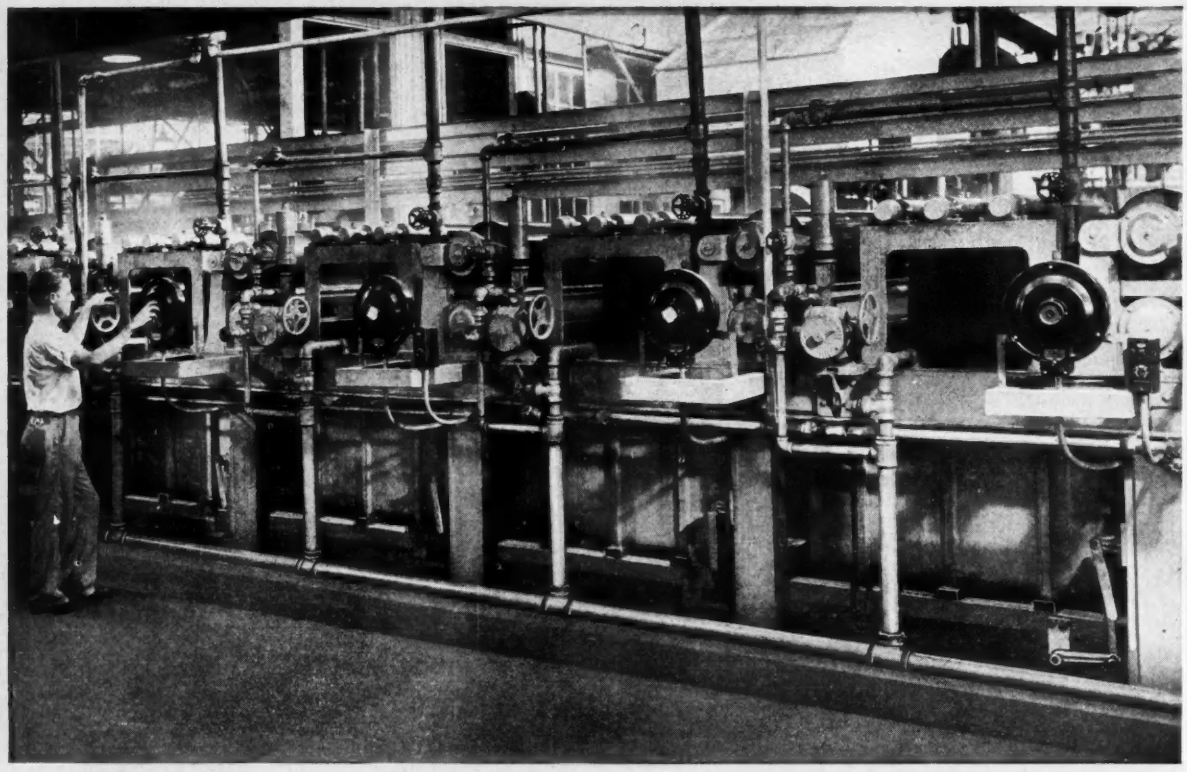

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